5768

ORDER NO. VRD8710M210
D1

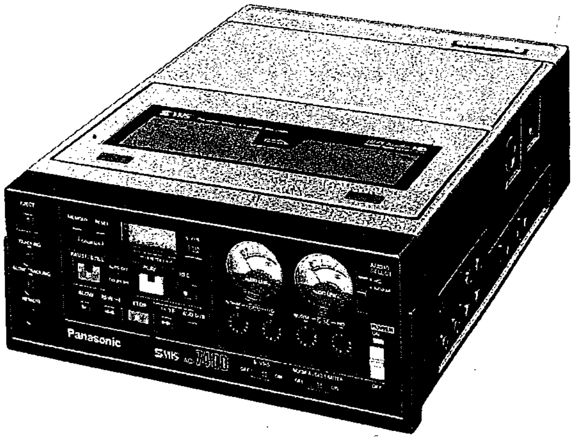
Service Manual

Operating Instructions
Electrical Adjustment Procedures
Mechanical Adjustment Procedures
Block Diagrams
Schematic Diagrams
Circuit Board Diagrams
Exploded Views
Replacement Parts List

Portable Video Cassette Recorder

Panasonic S-VHS Hi-Fi
Professional/Industrial Video

AG-7400



CAUTION: This service manual is applicable to the following serial numbers of AG-7400.
(From Serial No. J7TA)

SPECIFICATIONS

ITEM	SPECIFICATION
Power	Source: DC 10.5V~16V
	Consumption: Approx. 22W (49W with Camera)
Video	Head: 4 rotary head, helical scanning system
	Luminance: FM azimuth recording
	Color signal: Converted subcarrier phase shift recording
	Input Level: VIDEO IN (BNC): 1.0Vp-p 75Ω unbalanced S-VIDEO IN (4P): Y; 1.0Vp-p 75Ω unbalanced C; 0.286Vp-p 75Ω unbalanced Camera (14P): 1.0Vp-p 75Ω unbalanced
	Output Level: VIDEO OUT (BNC): 1.0Vp-p 75Ω unbalanced S-VIDEO OUT (4P): Y; 1.0Vp-p 75Ω unbalanced C; 0.286Vp-p 75Ω unbalanced Camera (14P): 1.0Vp-p 75Ω unbalanced
	Signal-to-Noise Ratio (VHS): Color; 45dB
	Horizontal Resolution: B/W; more than 400 lines Colour; more the 400 lines
Audio	Head: Normal Audio/Control: 1 stationary head HD Audio: 2 rotary heads Erase: 1 full track erase 1 Audio track erase
	Track: 2 tracks (Normal-stereo), 2 channels (HD sound-stereo)

ITEM	SPECIFICATION
Audio	Input Level: LINE IN (phono): −10dBV, 47kΩ unbalanced MIC IN (1/4″ phone × 2): −73dBV, 600Ω unbalanced Camera (14P): −20dBV, 4.7kΩ unbalanced
	Output Level: LINE OUT (phono): −8dBV, 600Ω unbalanced HEADPHONES: −50dBV~−20dBV, 8Ω unbalanced
	Frequency Response: Normal: 50Hz~12kHz HD Sound: 20Hz~20kHz
	Dynamic Range: HD Sound: 80dBV
	Signal-to-Noise Ratio: 48dBV (Normal NR ON)
Time Code	Input Level (phono): 1.0Vp-p, 56kΩ unbalanced
	Output Level (phono): 0.2Vp-p, 5.6kΩ unbalanced (Common use with in terminal)
Television System	EIA Standard (525 lines, 60 fields) NTSC color Signal
Tape Speed	1-15/16 i.p.s (33.35mm/s) (Normal)
Tape Format	S-VHS tape, VHS tape (Tape width 1/2″ (12.7mm))
Operating Condition	Temperature: 32°F~104°F (0°C~40°C) Humidity: 35%~80%
Dimention	8-3/4″(W) × 3-5/8″(H) × 11-5/8″(D) 222(W) × 90(H) × 296(D)mm
Weight	Approx. 7.7lbs. (3.5kg) (without battery)
Accessories Supplied	Carring Case (VFC0117) S-Video Cord

Specifications are subject to change without notice.
Weight and dimensions shown are approximate.

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INTRODUCTION

This Service Manual contains all the technical information which will allows service personnels to understand and service this Panasonic SVHS portable video cassette recorder model AG-7400. By the use of the S-VHS system, a sharp picture quality with high resolution is obtained, and advanced editing by easy operation is realized by the introduction of high reliability mechanisms. Added to the basic VHS format, these features make the AG-7400 an ideal unit for business, education, sales and training applications.

Just slightly ahead of out time... Panasonic

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CAUTION

RISK OF ELECTRIC SHOCK DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

This equipment has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications set forth in Subpart J of Part 15 of the FCC Rules. If this equipment does cause interference to radio or television reception which can be determined by turning the equipment on and off, use the equipment in another location and/or utilize an electrical outlet different from that used by the receiver.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

Inspection

CAUTION:
TO PREVENT FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

Standard Accessory (supplied)

- Carrying Case, VFC0117
- S-Video Cord

Optional Accessories

- Video Cassette Tape
- Video Camera, WV-300CLE, WV-V3
- AC Adaptor, AG-B640
- Battery Pack, AG-BP202
- Car Battery Cord, NV-C450
- Remote Controller VW-R17E

Features

S-VHS System

A high performance S-VHS video cassette assures recordings of a clear and detailed high quality picture with a horizontal resolution of no less than 400 lines.

Flying Erase Head

A Flying Erase Head mounted on the head cylinder in addition to the recording head allows you to make clean backspace edits free from color beat.

A Camera Connector for Professional Use (14P)

With it connected to 3-tube color camera for professional use, the battery alarm and tape end alarm (in case of WV-300CLE, etc.) can be checked in the camera viewfinder.

Hi-Fi Sound

A 4-channel audio system consisting of normal audio (2 channels) and HD sound (2 channels), together with a Dolby* NR System, enables you to enjoy high quality live recordings. Also, you can connect a 1/4" Phone jack microphone and easily adjust the input levels of CH1 and CH2 independently by observing the respective meters.

Framing Servo

A framing servo circuit which aligns the phase of both odd and even numbered fields of the video signals with that of the two video heads on the cylinder. This enables framing error to be eliminated when editing using a VHS standard editor. As a result, picture disturbance at the editing points is prevented.

Large Capacity Power Supply Circuit

You can connect a commercial 3-tube color camera to the unit. The range of camera selection is thus widened.

External Power Supply Input Terminals for Commercial Applications (4P-XLR connector)

You can connect this terminal to an optional AC Adaptor AG-B640, and also to a commercial XLR connector type AC Adaptor.

Time Code Recording and Playback terminal

By connecting a SMPTE time code generator to this terminal, you can record time code signals on the normal audio CH2. By connecting a time code reader to this terminal, you can play back time code recorded on the tape.

Remote Control Facility

All functions of the recorder can be controlled using the VW-R17E remote controller (optional) except audio dubbing and cassette ejection. This remote control is particularly useful when the AG-7400 is operated by the cameraperson.

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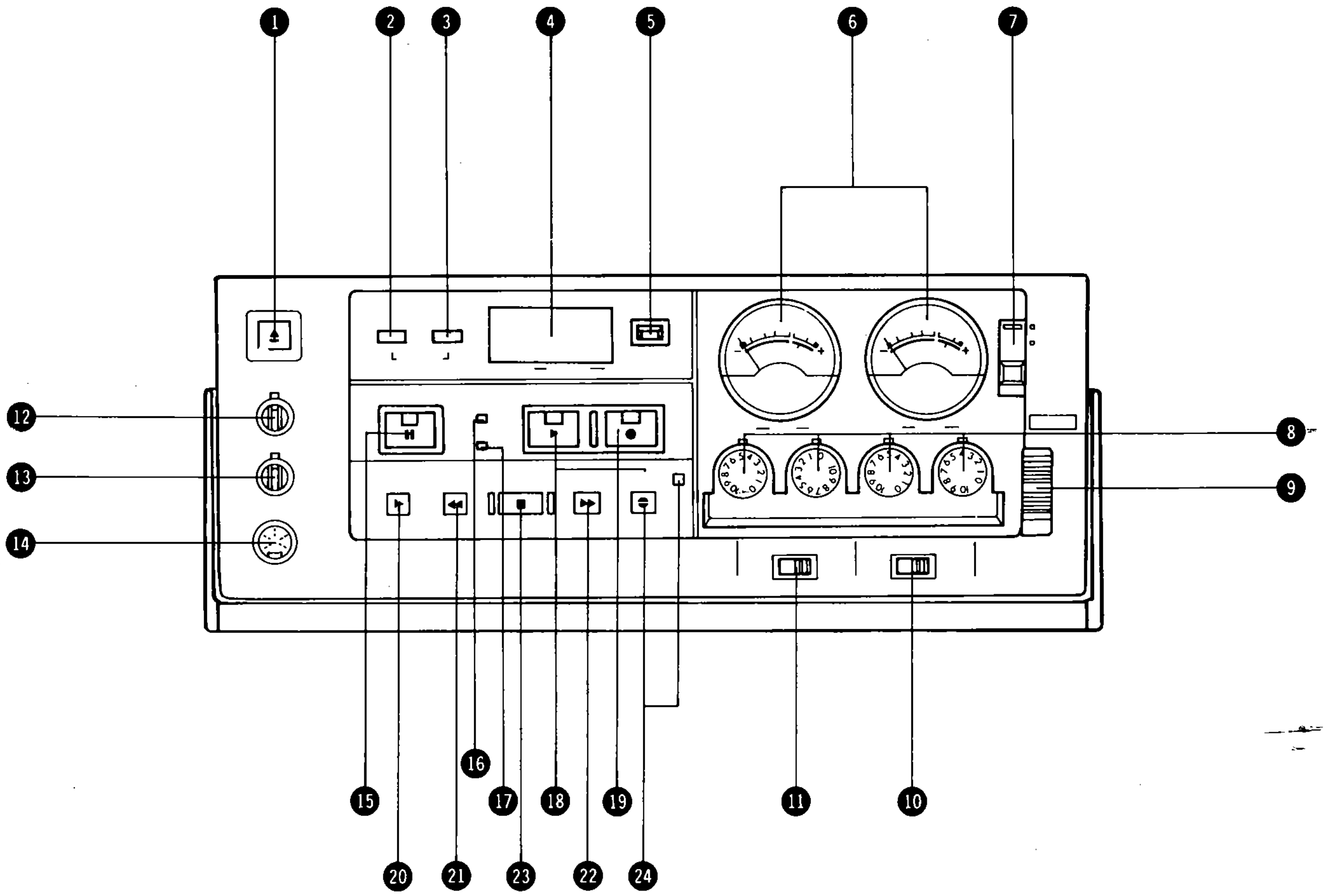
* 'Dolby' and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

* Noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.

Controls and Connectors

FRONT PANEL



① Eject Button

② Memory Button

③ Reset Button

④ Counter Display

⑤ S-VHS Lamp

⑥ Audio Level Meters for CH1 and CH2

⑦ Audio Selector Switch

⑧ Audio Level Controls for CH1 and CH2

⑨ Power Switch

⑩ Normal Audio Limiter Switch

⑪ S-VHS Switch

⑫ Tracking Control (for normal playback) and

⑬ Slow Tracking Control (for slow motion playback)

⑭ Remote Control Connector

⑮ Pause/Still Button

⑯ Auto OFF LED

⑰ Dolby NR Lamp

⑱ Play Button

⑲ Record Button

⑳ Slow Button

㉑ Rewind and ㉒ Fast Forward Buttons

㉓ Stop Button

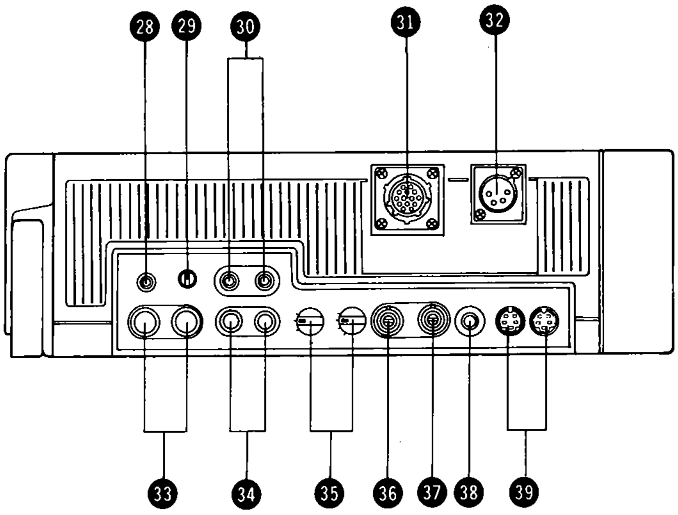
㉔ Audio Dubbing Button/Lamp

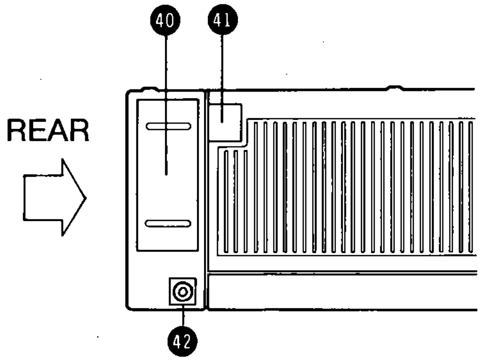
㉕ Audio Dub CH2/CH1, CH2 Switch

㉖ Camera EXT Audio In Switch

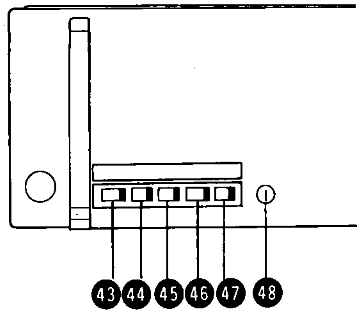
㉗ V-Lock Control

SIDE PANEL





REAR VIEW



㉘ **Headphone Jack**

㉙ **Headphone Level Control**

㉚ **Audio Output Jacks for CH1 and CH2**

㉛ **Camera Connector (14-pin connector)**

㉜ **External DC Input Connector**

㉝ **Microphone Jacks CH1 and CH2**

㉞ **Audio Input Jacks (Phono Jacks) for CH1 and CH2**

㉟ **Audio Input Selector Switch**

㊱ **Video Input Connector**

㊲ **Video Output Connector**

㊳ **Time Code Input/Output Jack (Phono Jack)**

㊴ **S-Video IN/OUT Connectors**

㊵ **Battery Pack Compartment**

㊶ **Battery Eject Button**

㊷ **EXT BATT Connector**

㊸ **Camera Input (ENC-YC) Switch**

㊹ **YC Filter ON/OFF Switch**
When the composite signal is output,
Set this switch to the ON position during playback.
You can obtain less noise and more clear playback picture.
When the YC separate signal is output,
Set this switch to the OFF position.

㊺ **Dolby NR Switch**

㊻ **Framing ON/OFF Switch**

㊼ **Detail ON/OFF Switch**

㊽ **Picture Quality VR**

1-1. THE MECHANISM

This model's mechanical chassis is similar to that of AG-6400, and has the same structure. But the following points have been improved to decrease lateral vibration and jitter, Resulting in reduced time base error in both record and play modes.

(1) A bearing is used on the P2 post roller.
(2) A bearing is used on the P1 post roller.
(3) The tension regulator post rides on a bearing.

1-2. POWER SUPPLY

1) Power Supply Inputs
The power supply circuits are basically the same as those of the AG-6400.
Because the number of power supply circuits has been increased, an extra a terminal for a spare battery has been added.

2) Power Supply Capacity
Due to the additional S-VHS circuitry, the power consumption has increased by 8 watts, for a total of 18 watts.
(AG-6400 uses 10 watts).
Because of this, when power is supplied by a battery pack, the operating time is decreased to 60 minutes, rather than 90 minutes with the AG-6400. If you use two batteries in parallel the operating time becomes 120 minutes. (When a camera is connected, power consumption is typically about 45 W.)

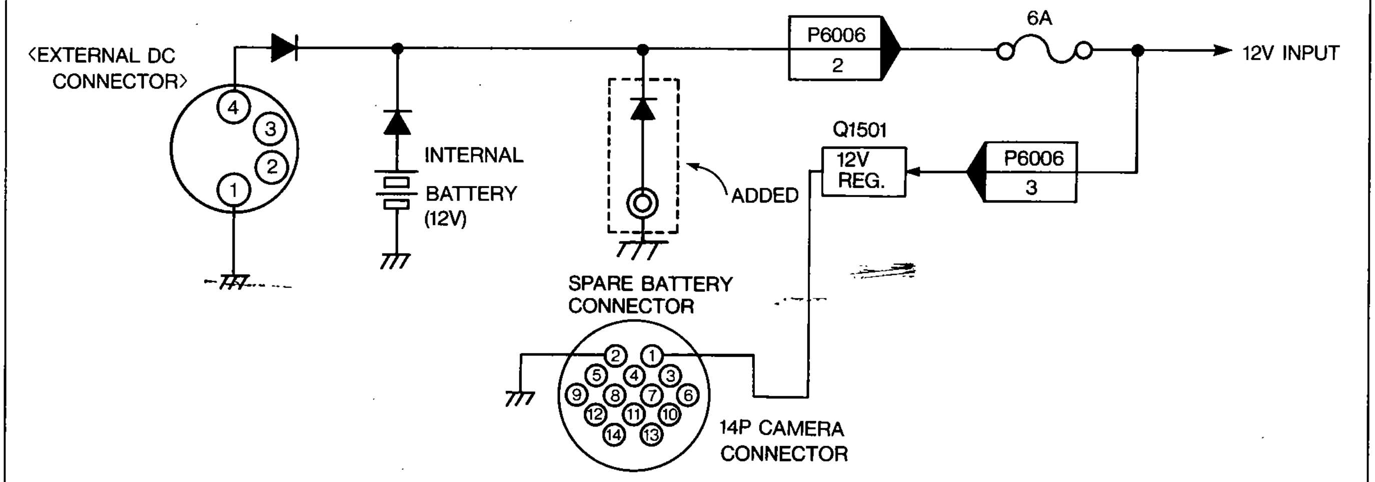


Figure 1-2 Power Sources

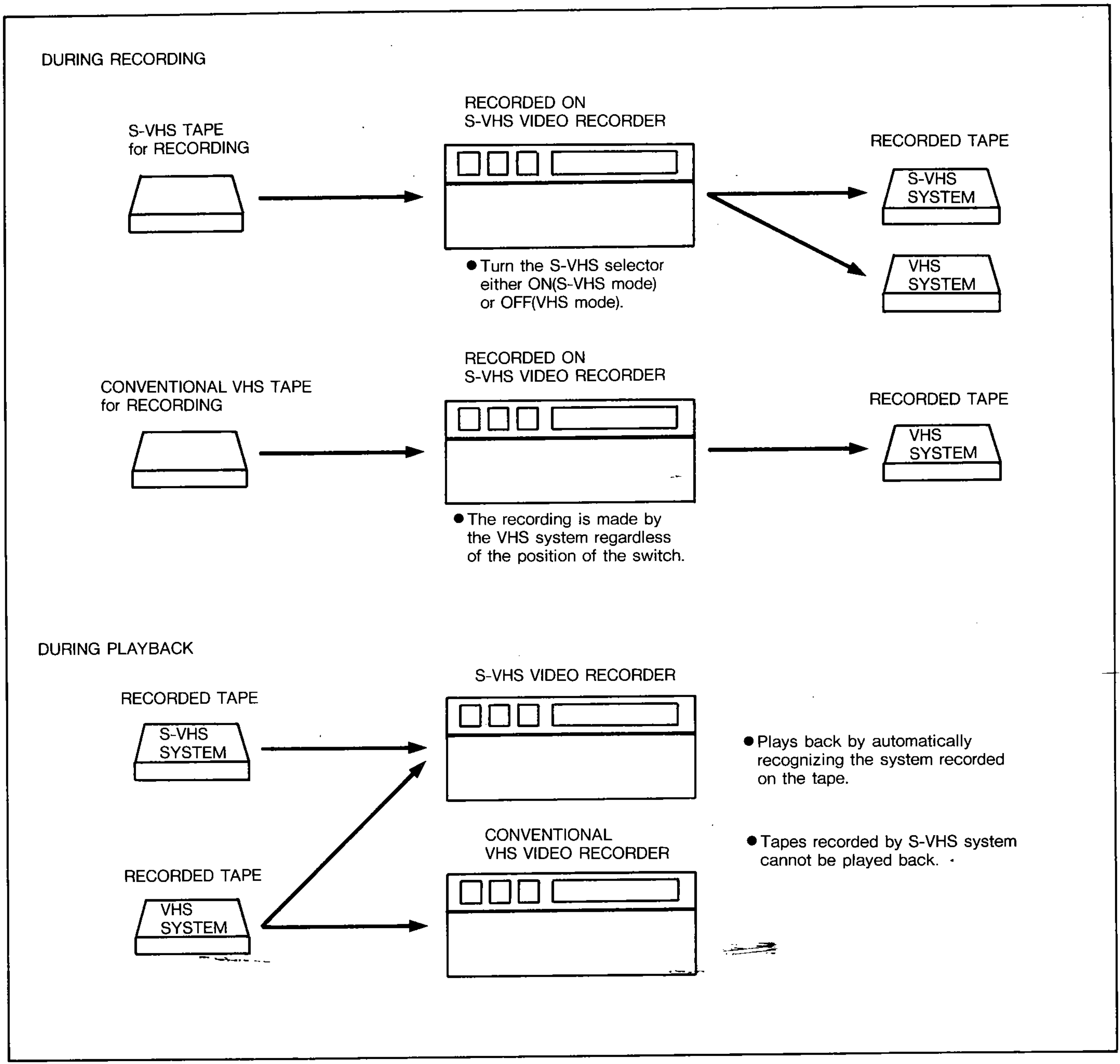

DURING RECORDING
S-VHS TAPE for RECORDING
RECORDED ON S-VHS VIDEO RECORDER
RECORDED TAPE
S-VHS SYSTEM
VHS SYSTEM
● Turn the S-VHS selector either ON(S-VHS mode) or OFF(VHS mode).
CONVENTIONAL VHS TAPE for RECORDING
RECORDED ON S-VHS VIDEO RECORDER
RECORDED TAPE
VHS SYSTEM
● The recording is made by the VHS system regardless of the position of the switch.
DURING PLAYBACK
RECORDED TAPE
S-VHS SYSTEM
S-VHS VIDEO RECORDER
● Plays back by automatically recognizing the system recorded on the tape.
CONVENTIONAL VHS VIDEO RECORDER
● Tapes recorded by S-VHS system cannot be played back.
RECORDED TAPE
VHS SYSTEM

Figure 1—3 Interchangeability of Video Recorders and Cassettes

1–3. S–VHS SYSTEM

The S–VHS System has been designed to meet the critical demands of the Video Information Age. This system incorporates technologies that provide high resolution and excellent picture quality with the VHS Video system, which is solidly established the world over for industrial and home use.
The combination of this system with the newly developed S–VHS video cassette has enabled epoch–making progress in picture clarity and detail. The system produces a horizontal resolution of no less than 400 lines.

	S-VHS	VHS
Y FM CARRIER (MHz)	5.4 (SYNC TIP) ≀ 7 (PEAK WHITE)	3.4〜4.4
RESOLUTION (LINE)	400	250
WHITE CLIP (%)	200	190
OTHERS	1) S-VHS TAPE 2) SUB EMPHASIS CIRCUIT, (+SUB DEEMPHASIS)	1) S-VHS or VHS TAPE 2) DETAIL ENHANCER (NO DEEMPHASIS) NOISE CANCEL

Figure 1—4 S-VHS & VHS

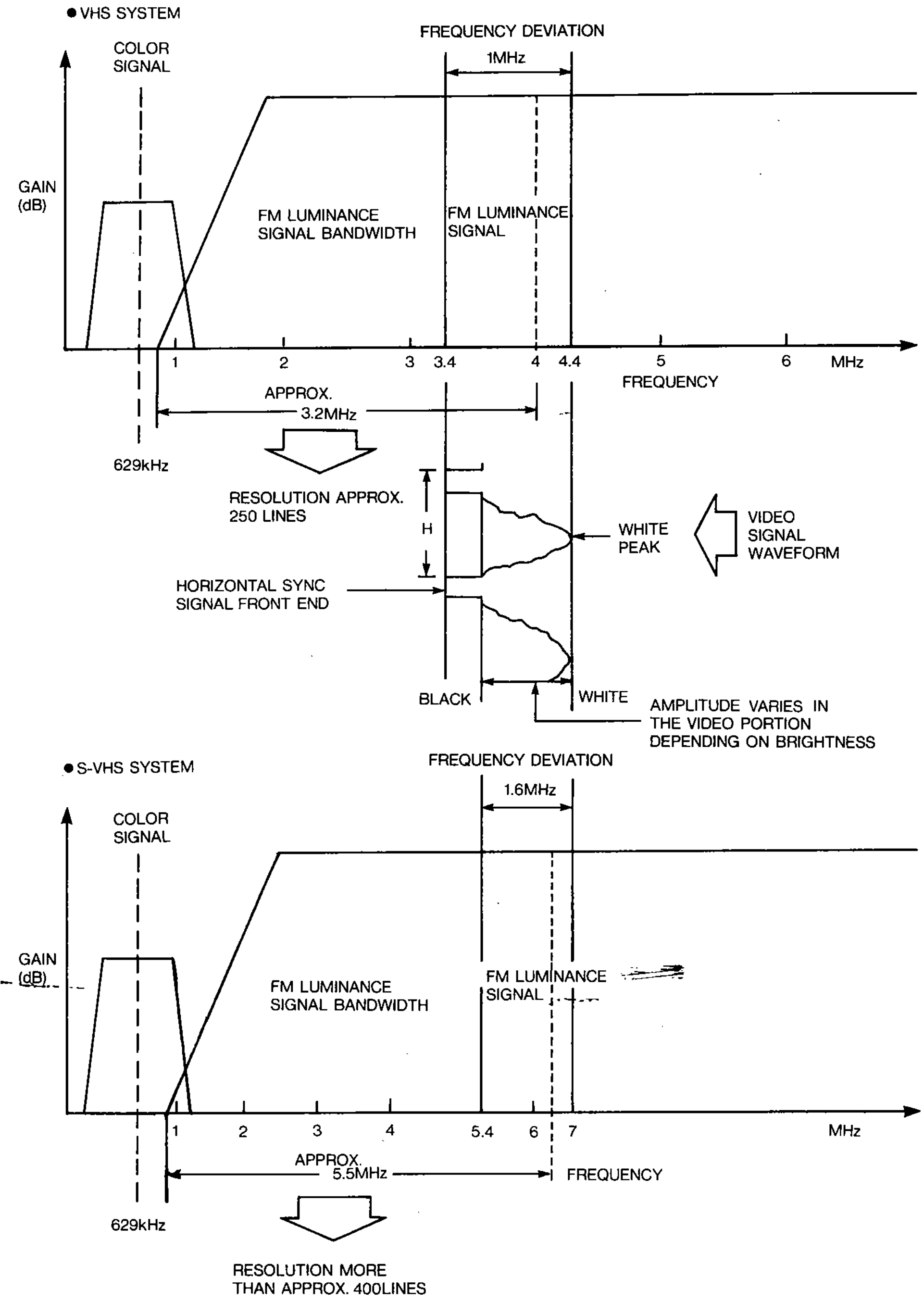


Figure 1–5 Frequency Allocation

2. SYSTEM CONTROL SECTION

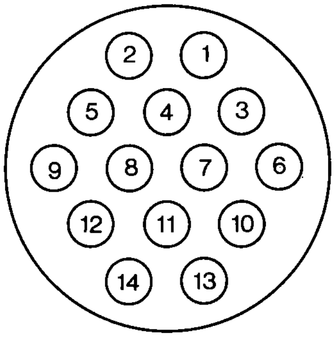
These circuits are almost the same as those of the AG–6400, so only the differences will be explained.

2–1. 14 PIN CAMERA TERMINAL

A 14 pin connector has been used in this deck since the camera of choice is naturally a 3 tube (or CCD), which allows full advantage to be taken of the S–VHS picture quality. Should a 10 pin camera be used, a conversion cable is needed. The internal 10/14 pin select switch should be set to the 10 pin side.

2–2. TRIGGER SWITCH (POLARITY CHANGEOVER SWITCH)

When you connect any other manufacture of camera directly to this equipment, the start/ stop action of the VTR may work in the opposite way (When the recording tally lamp is ON the VTR stops and when the tally lamp is OFF the VTR starts.). Apolarity changeover switch has been provided to accommodate any VTR.



14 PIN TERMINAL

No.	CONTENT	No.	CONTENT
①	GND (FOR POWER SUPPLY)	⑧	GND (FOR VIDEO)
②	12V	⑨	VIDEO OUTPUT (ONLY FOR 14P)
③	AUDIO INPUT (CH 1)	⑩	BATTERY INDICATOR OUTPUT
④	GND (FOR AUDIO)	⑪	CHROMA SIGNAL INPUT
⑤	GND (FOR AUDIO)	⑫	REC/WARNING OUTPUT
⑥	VIDEO INPUT/OUTPUT (IN CASE OF 10P)	⑬	VTR START/STOP INPUT
⑦	GND (FOR VIDEO)	⑭	STANDBY ⊕ INPUT/AUDIO MONITOR OUTPUT

Figure 2–1 14 Pin Camera Connector

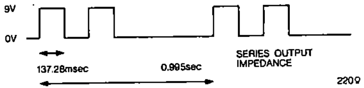
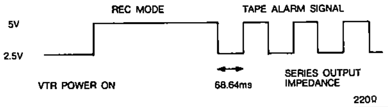
PIN NO.	CAMERA VIDEO SWITCH		REMARK FOR SIGNAL
	ENC	Y/C	
1	DC (GND)	DC (GND)	10.5~16V/2.25A
2	DC 12V OUT	DC 12V OUT	
3	MIC (HOT)	MIC (HOT)	−20dBv, 4700 Ω
4	MIC (COLD)	MIC (COLD)	
5	MIC (SHIELD)	MIC (SHIELD)	
6	COMPOSITE VIDEO IN (HOT)	Y IN (HOT)	1.0Vp–p, 75 Ω
7	COMPOSITE VIDEO IN (GND)	Y IN (GND)	
8	GND	GND	1.0Vp–p, 75 Ω
9	RETURN VIDEO OUT	RETURN VIDEO OUT	
10	BATTERY INDICATION OUT	BATTERY INDICATION OUT	 9V 0V 137.28msec 0.995sec SERIES OUTPUT IMPEDANCE 220Ω
11		C IN (HOT)	0.286Vp–p, 75 Ω (BURST SIGNAL)
12	REC/ALARM SIGNAL OUT	REC/ALARM SIGNAL OUT	 REC MODE TAPE ALARM SIGNAL 5V 2.5V VTR POWER ON 68.64ms SERIES OUTPUT IMPEDANCE 220Ω
13	VTR START/STOP SIG IN	VTR START/STOP SIG IN	START : 4.5±0.5V POLARITY OF VTR START/STOP SIGNAL STOP : 0±0.5V
14	POWER SAVE IN/AUDIO MONITOR OUT	POWER SAVE IN/AUDIO MONITOR OUT	SAVE : 4.5±0.5VDC (across 10k Ω) OPERATE : 9.0±0.5VDC or 0±0.5VDC (across 10k Ω) MONITOR : −36dBv, 680 Ω

Figure 2–2 AG-7400 14Pin Connector

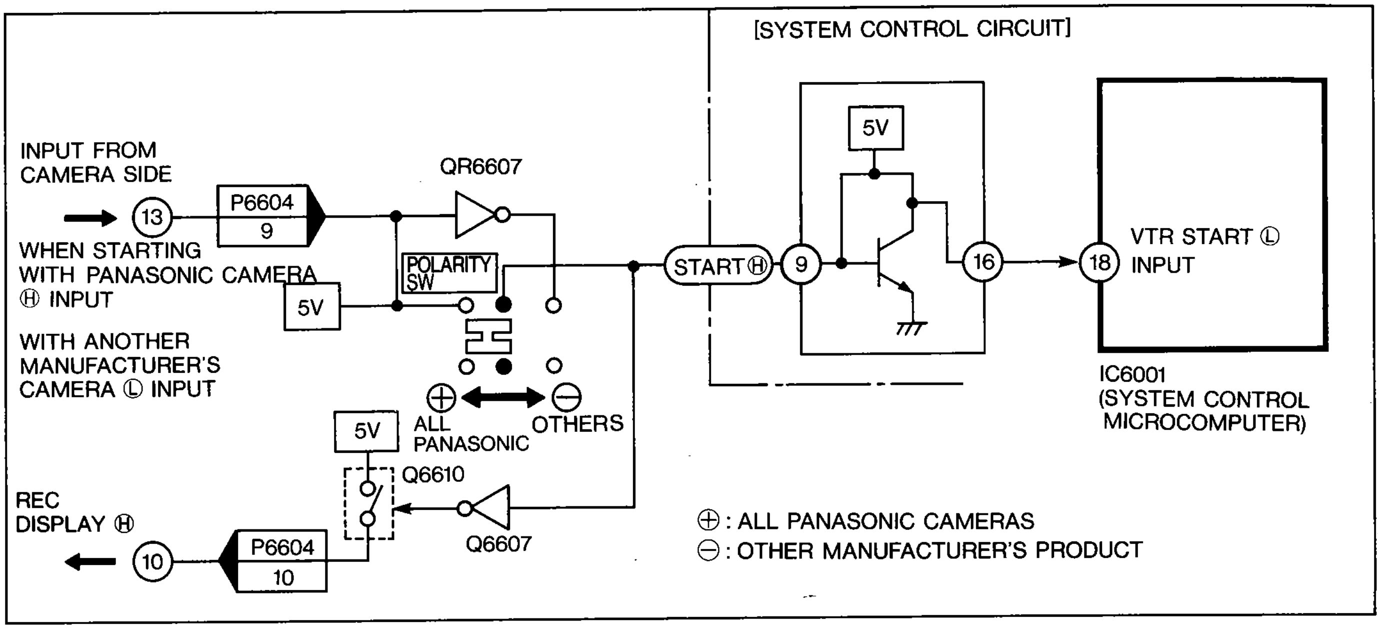

[SYSTEM CONTROL CIRCUIT]
INPUT FROM CAMERA SIDE
13
P6604
9
QR6607
WHEN STARTING WITH PANASONIC CAMERA Ⓗ INPUT
5V
POLARITY SW
WITH ANOTHER MANUFACTURER'S CAMERA Ⓛ INPUT
⊕ ⊖
ALL PANASONIC
OTHERS
5V
Q6610
REC DISPLAY Ⓗ
10
P6604
10
Q6607
START Ⓗ
9
5V
16
18
VTR START Ⓛ INPUT
IC6001 (SYSTEM CONTROL MICROCOMPUTER)
⊕ : ALL PANASONIC CAMERAS
⊖ : OTHER MANUFACTURER'S PRODUCT

Figure 2–3 Trigger Switch

2–3. THE TRANSMISSION OF SERIAL DATA TO THE CAMERA HAS BEEN ABOLISHED

Since many 3–tube cameras cannot read serial data from the VTR, the AG–7400 primarily receives data to avoid any possible misoperation. Therefore the camera remote control SW on the front side of the control panel has been omitted.

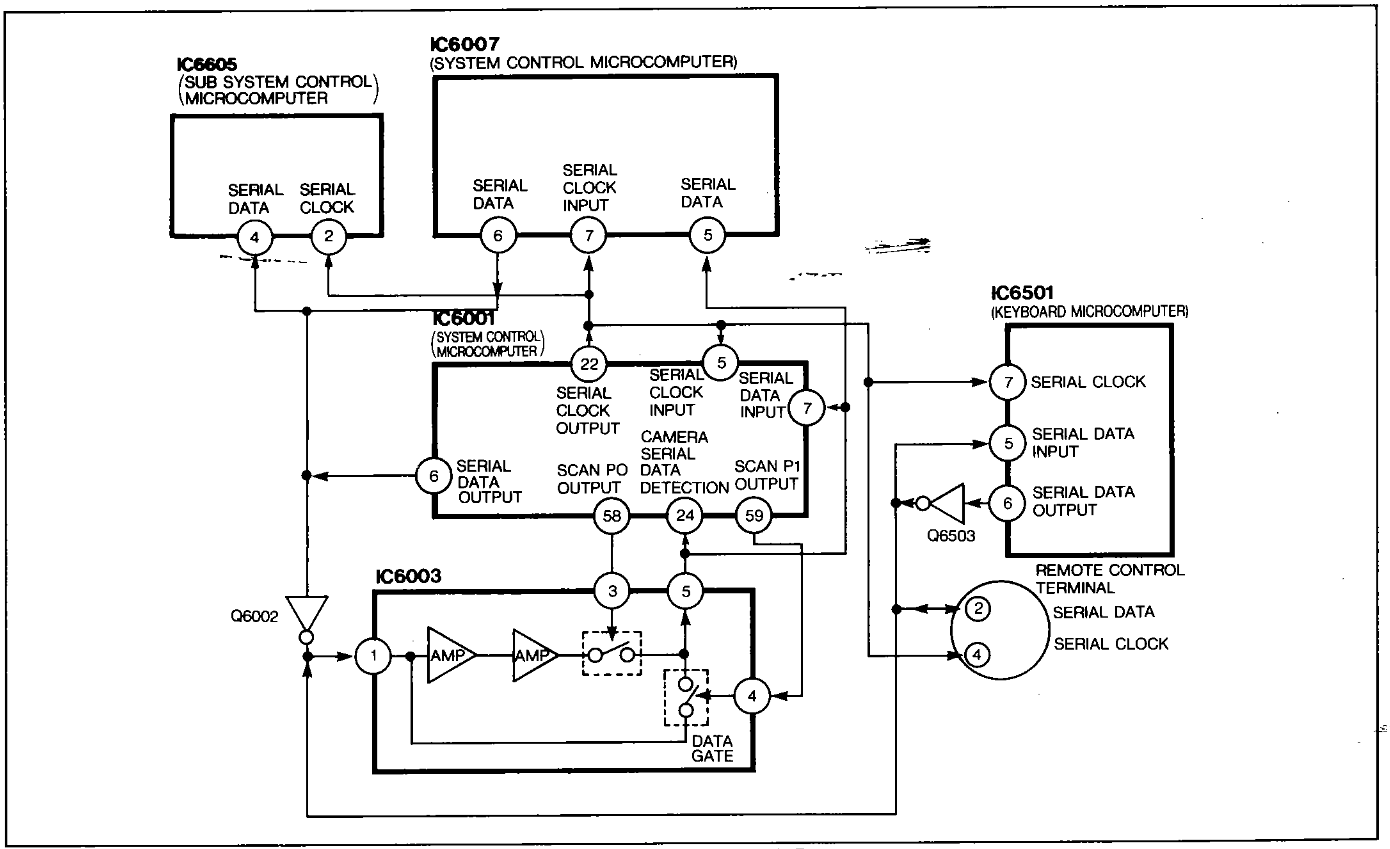


Figure 2–4 Serial Data

2–4. DISPLAY OUTPUT OF RESIDUAL QUANTITY OF THE BATTERY AND THE BATTERY WARNING CIRCUIT

In the case of AG–6400, the remaining battery voltage was displayed in the camera E.V.F. using serial data, but with serial–data–incompatible cameras (3 tube etc.) microprocessor communication is impossible. In this equipment, early warning of a low battery is possible, even in 3–tube cameras, By the following circuit.

When the voltage goes down below 11.0V, L signal is output from pin 6 of IC6605 and sent to 14 pin camera connector.
Also the information of the remaining tape is sent to IC6605 pin 4 using serial data.
When the tape remaining time becomes 2∼3 minutes during recording, L signal is fed out from pin 5 of IC6605 as a warning and sent to the 14 pin camera connector.

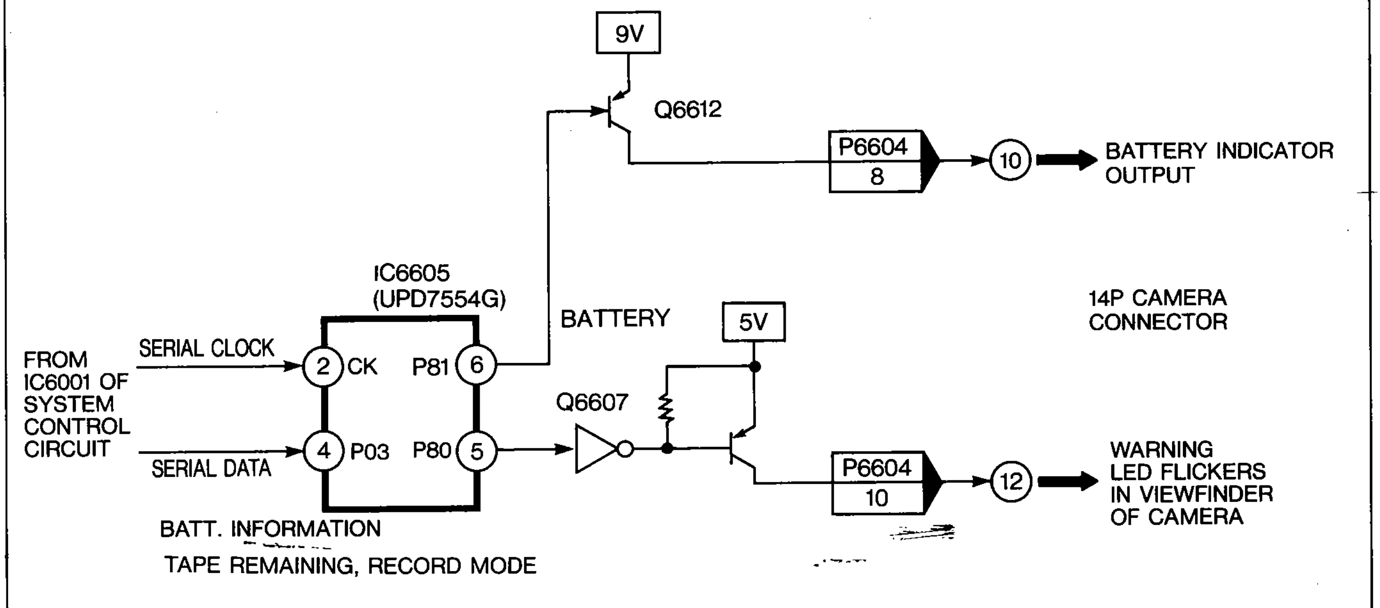


Figure 2–5 Battery Indicator Circuit

2–5. THE 10PIN/14PIN CAMERA CHANGEOVER SWITCH

If the camera which has a 14pin connector and is connected, the audio signal can be monitored using 14p/10p switch.

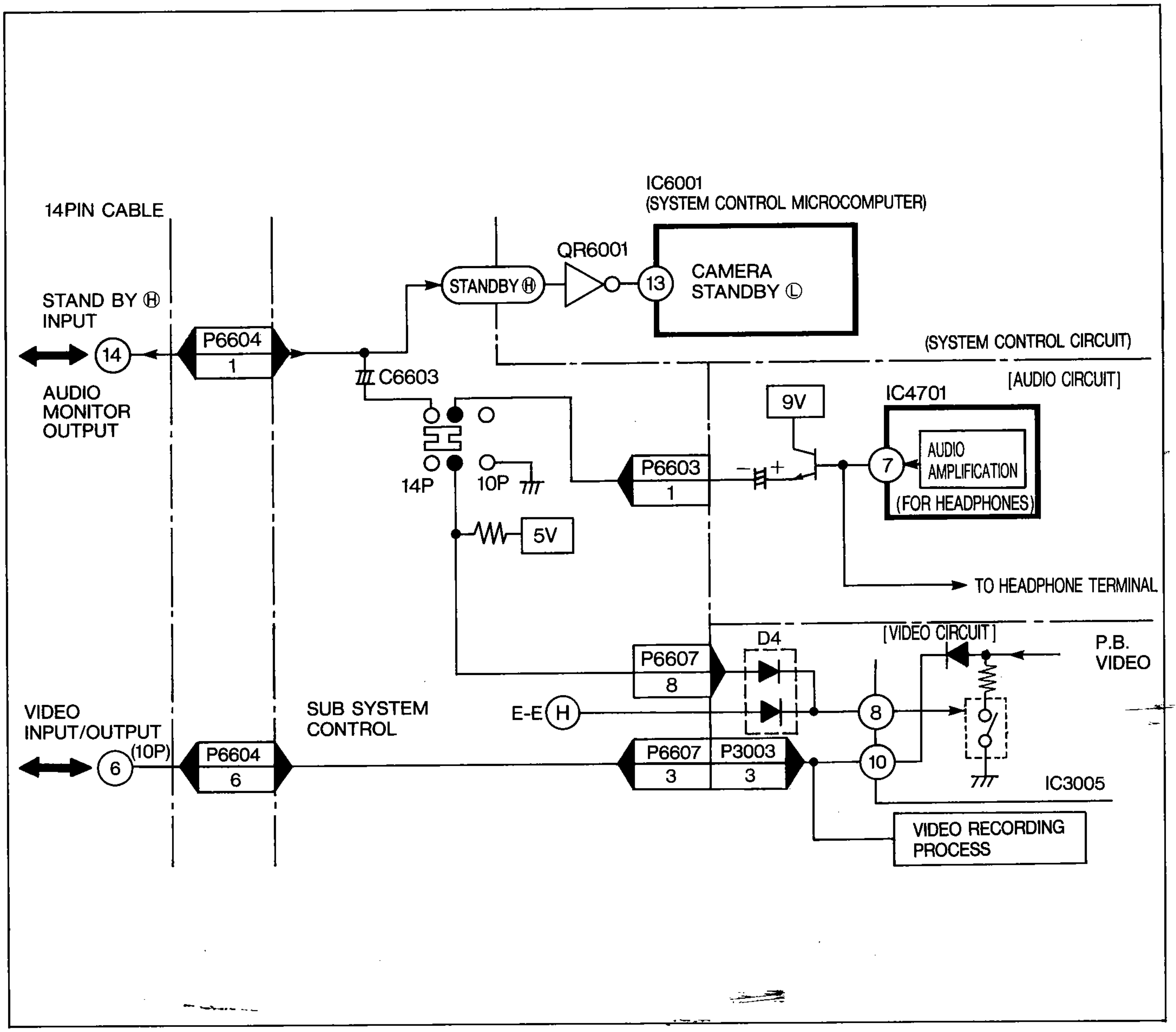


Figure 2–6 Camera 10P/14P Select Switch

2–6. ASSEMBLY/INSERT EDITING OPERATION

To eliminate the color beat which occurs in assembly editing, we have adopted a flying erase head to enable assembly and insert edits with clear picture.

1) Structure
The color beat was made inconspicuous in the AG–6400 by increasing the record current at the edit point, but in this equipment a flying erase head has been installed on the rotary head 60 degrees away from the FM audio head.
Only one erase head is used but the head width is such that it erases an entire frame at a time (2 tracks).
The erase head track width is 115um, which is twice the video track width.

2) Principle
During the assembly recording, the flying erase head is operated for 0.65 sec from the edit point (REC/PAUSE –> REC), or for 14.6 sec from the start of recording (STOP –> REC) respectively. Also during insert recording, the flying erase head is always operated. This is actually controlled by the CURRENT EMPHASIS signal from the system control microcomputer.
It is also necessary to control the on/off timing of the flying erase head with respect to the other heads (Video, HD audio heads) to prevent noise from being generated at the entry and exit points.

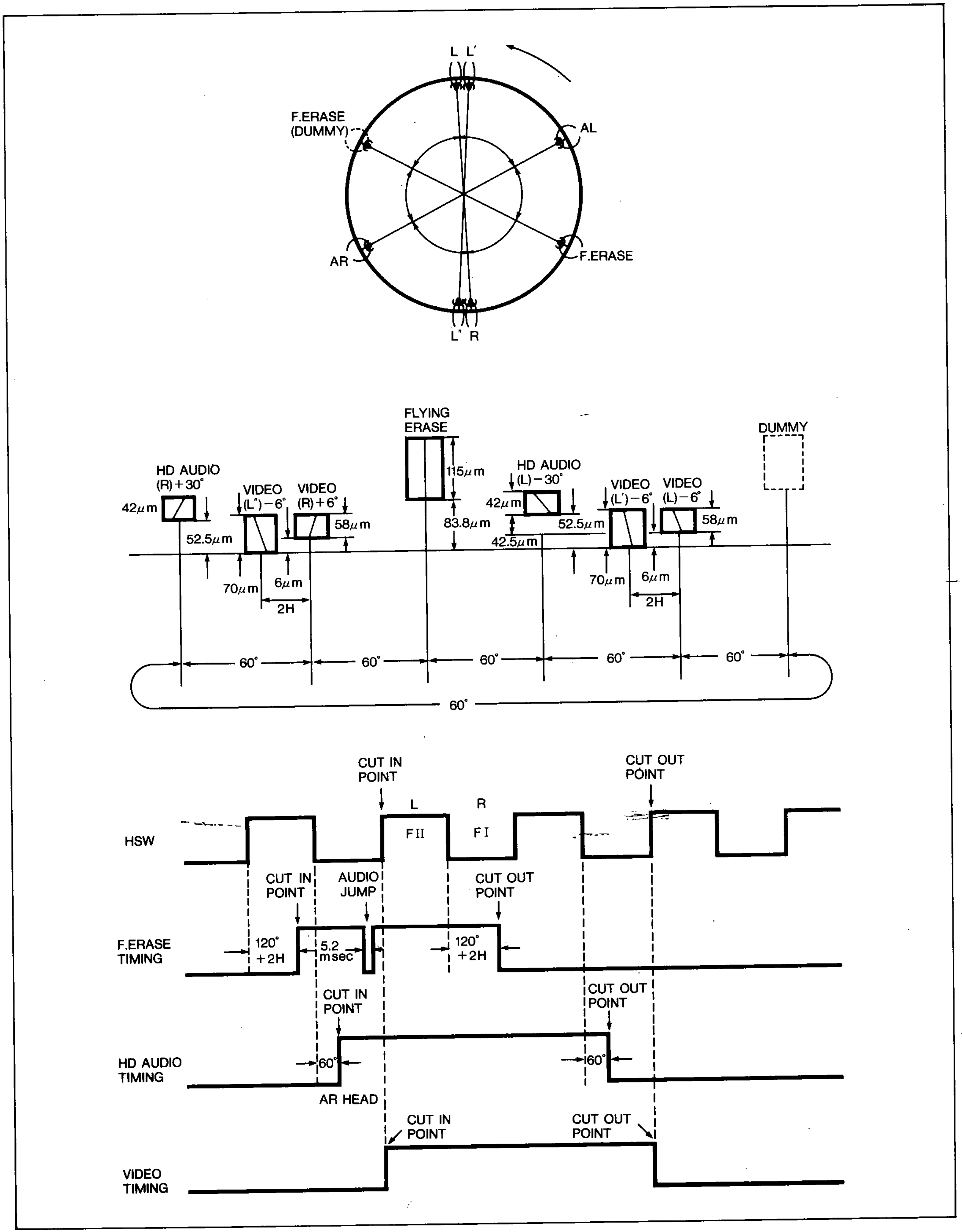


Figure 2–7 Head Location & Timing

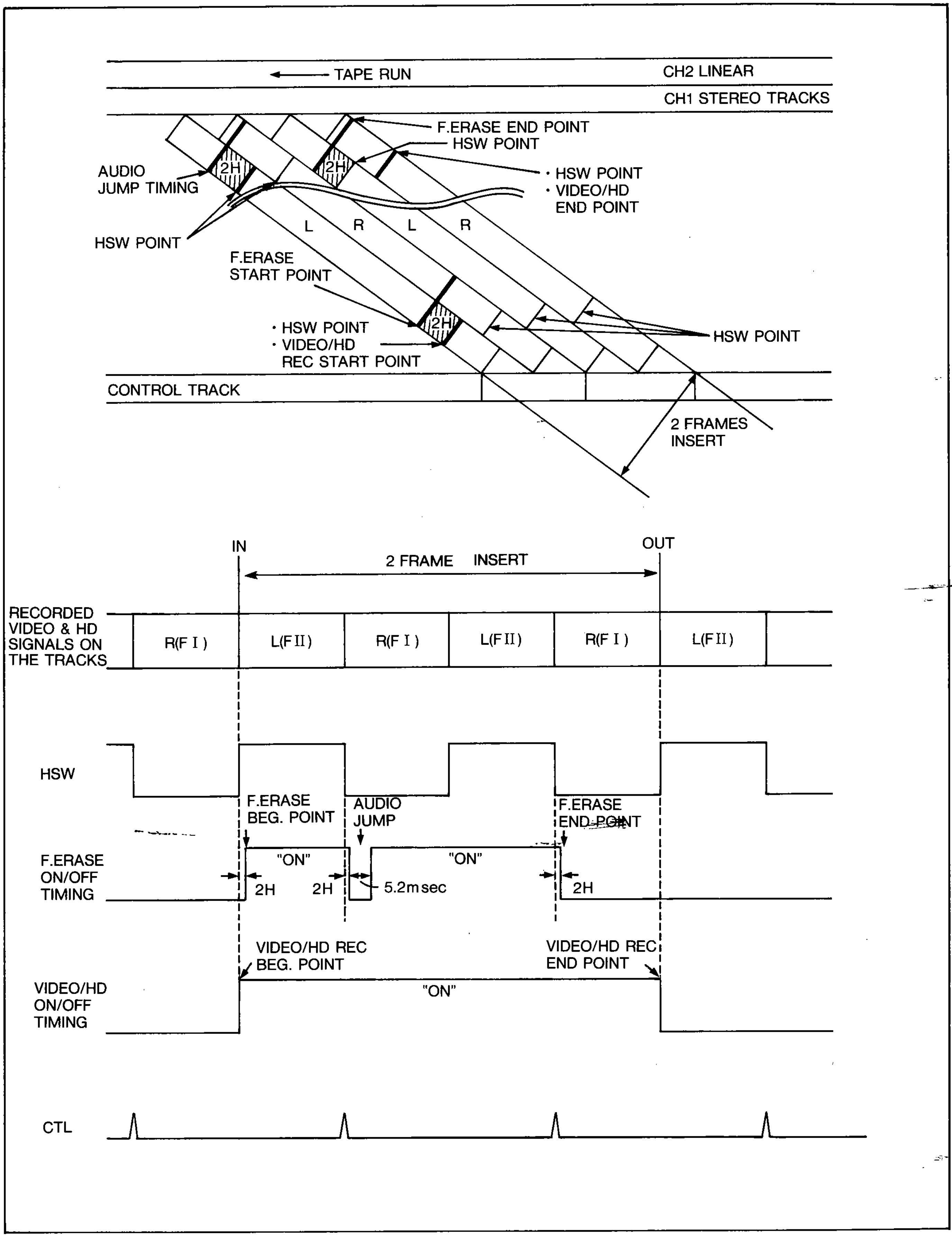


Figure 2–8 Operation Timing on the Tape

Observing the L track side we find that the audio (R) channel is recorded 120 degrees behind it and the video (L) channel is recorded a further 120 degrees behind.
In short, each head is spaced 120 degrees from the others. Unless each head operates in its specified position, noise or color beat will remain which will be noticeable. The following is an explanation of record timing start and end of the flying erase operation during the insert mode. (The operation in the assembly mode is exactly the same and the flying erase head would be inhibited after a certain period.)

A. Timing pulse generator, Figure 2–9
To produce all the timings of the flying erase, HD audio and video heads, various timing pulses are generated and gated using counter, clock, gate and flip–flops. These pulses are then sent to the respective circuits.

B. Flying erase timing circuit
There are two kinds of blocks in this circuit. One is the flying erase on/off timing, the other is audio track jump generator.
(1) Flying erase on/off timing, Figure 2–10
Three outputs from IC6702 and IC6701 in timing pulse generator are sent to IC6706 (AND–GATE) and fed to pin 3 of IC6704 as a clock.
So at the cut in timing, H signal at pin 1 of IC6704 is fed out.

(2) Audio track jump generator, Figure 2–10

Output from IC6706 is AND–gated with the inverted head switching signal, then sent to pin 4 of IC6705, retrigger MMV. L signal is fed out at the rising edge of the input pin 4, actually for about 5.2msec, then mixed (NAND–gated) at IC6708 to control the timing of the flying erase head. On the other hand, 7.5MHz oscillator is activated by the FLYING ERASE ON L signal, gated by Q6701 and finally all the timings of cut in/out and audio track jump are performed at Q6705.

C. HD audio rec timing, Figure 2–11
Inverted head switching signal and outputs from the timing pulse generator are AND gated in IC6707 and sent to pin 3 of IC6703 as a clock.
Now as the flying erase head is activated, FE ON H signal is supplied to pin 5 of IC6703 and the output goes low from pin 2 of IC6703.

D. Video rec timing, Figure 2–12
HD REC L signal is latched by the head switching signal in IC6703, then low signal is fed out from pin 13 of IC6703 to record the video signal .
Also output from pin 12 of IC6703 and latched D–REC L signal by the head switching signal are NOR–gated, which turns QR6613 on. This high voltage is again switched on by the CURRENT EMPHASIS L signal, finally fed back to QR6701, which is turned on to drive the 7.5MHz oscillator as FLYING ERASE ON H signal.

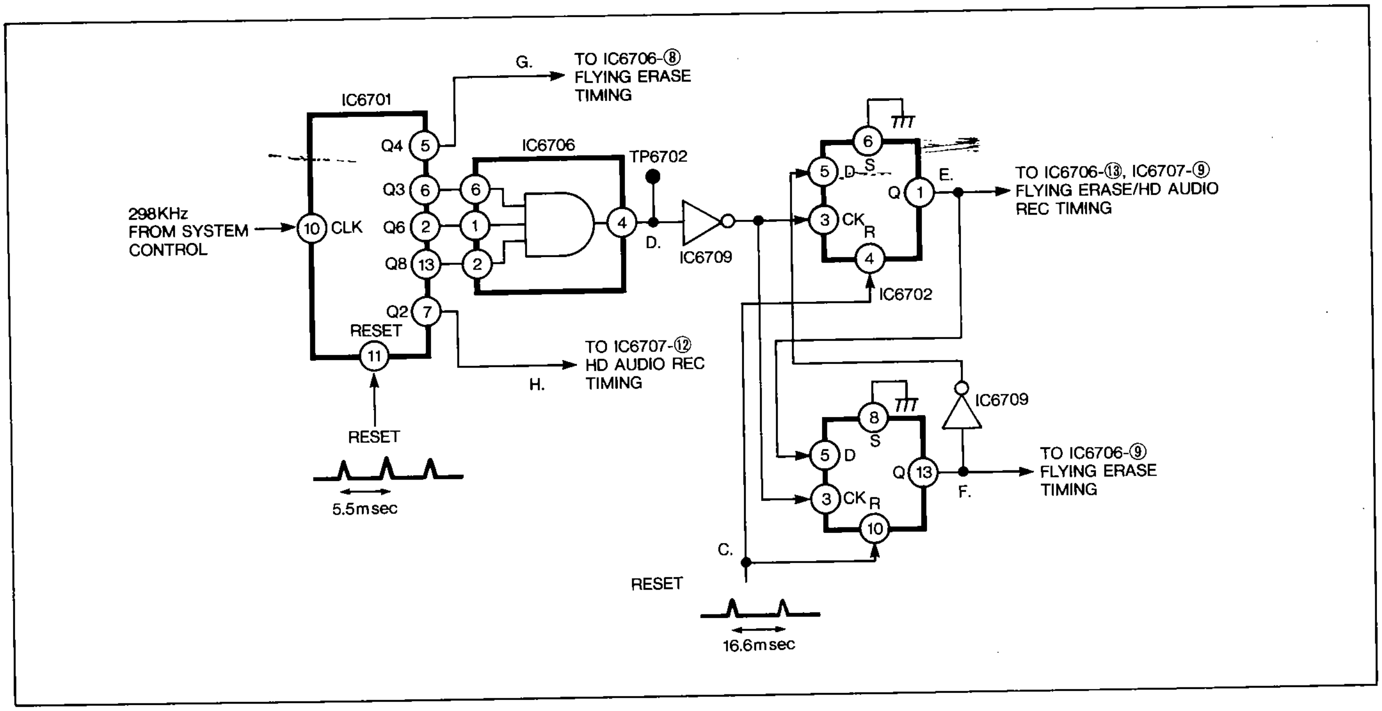


Figure 2–9 Timing Pulse Generator

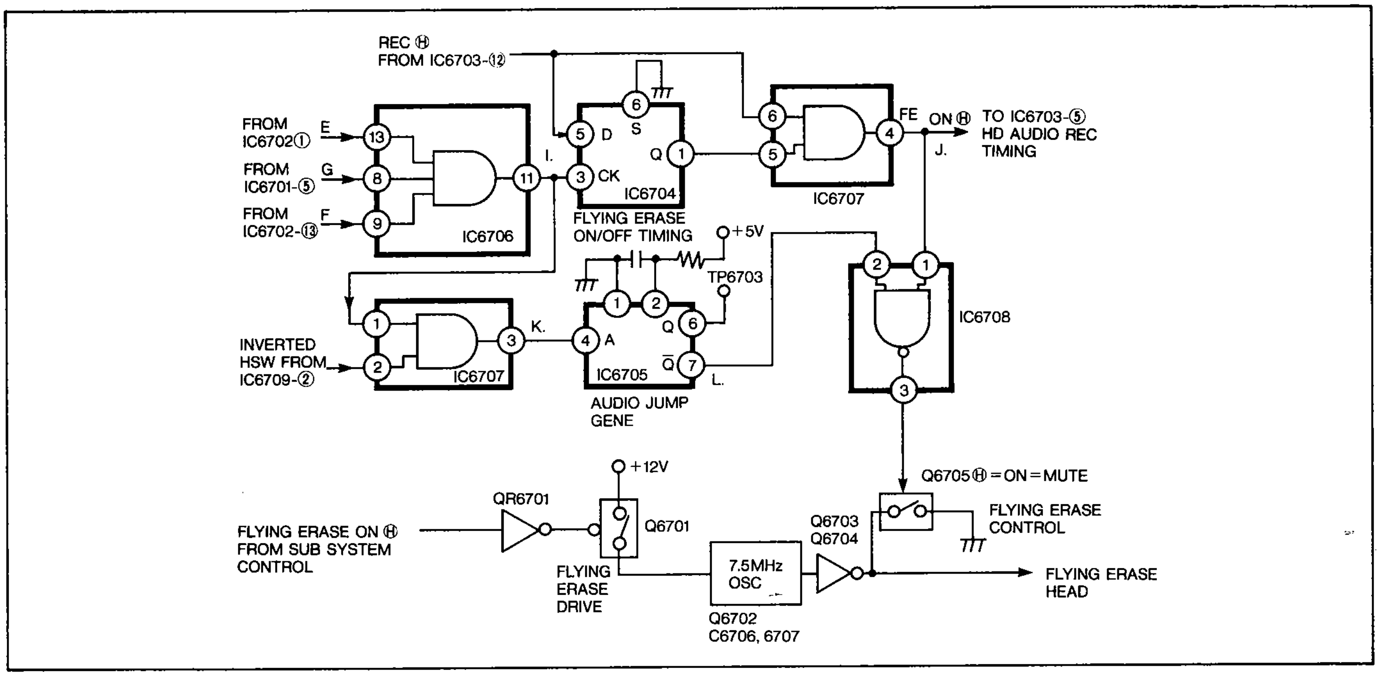


Figure 2–10 Flying Erase Timing

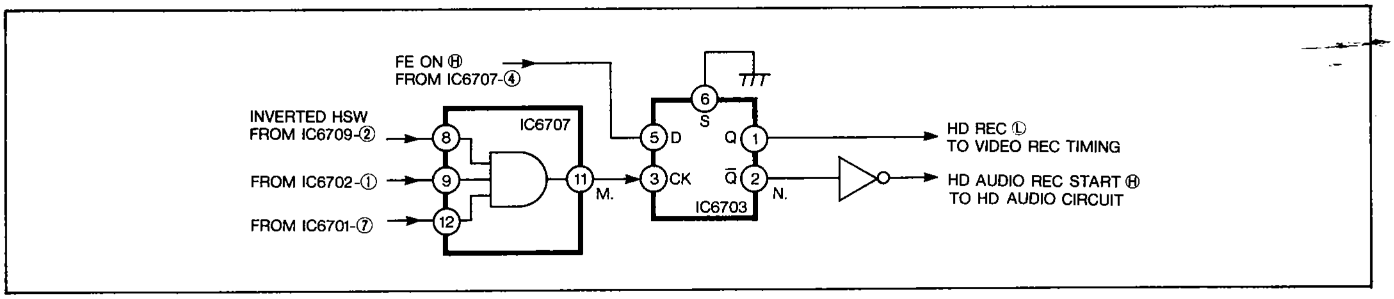


Figure 2–11 HD Audio Rec Timing

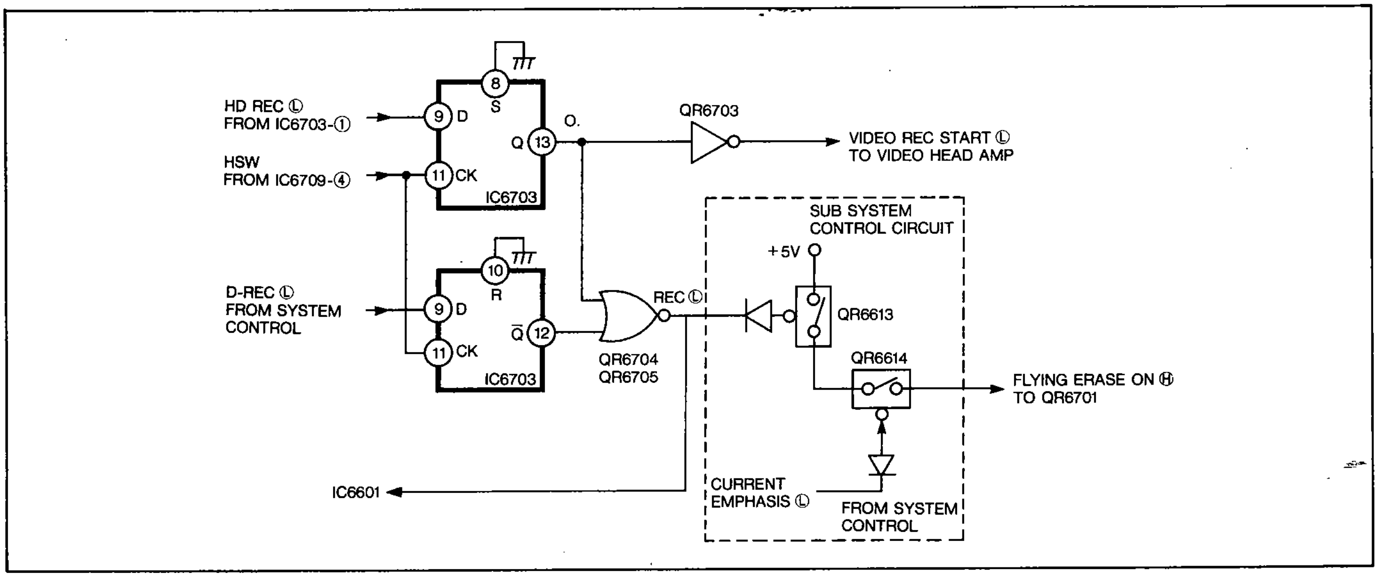


Figure 2–12 Video Rec Timing

All the timings of flying erase/HD/video are listed in figure 2–13

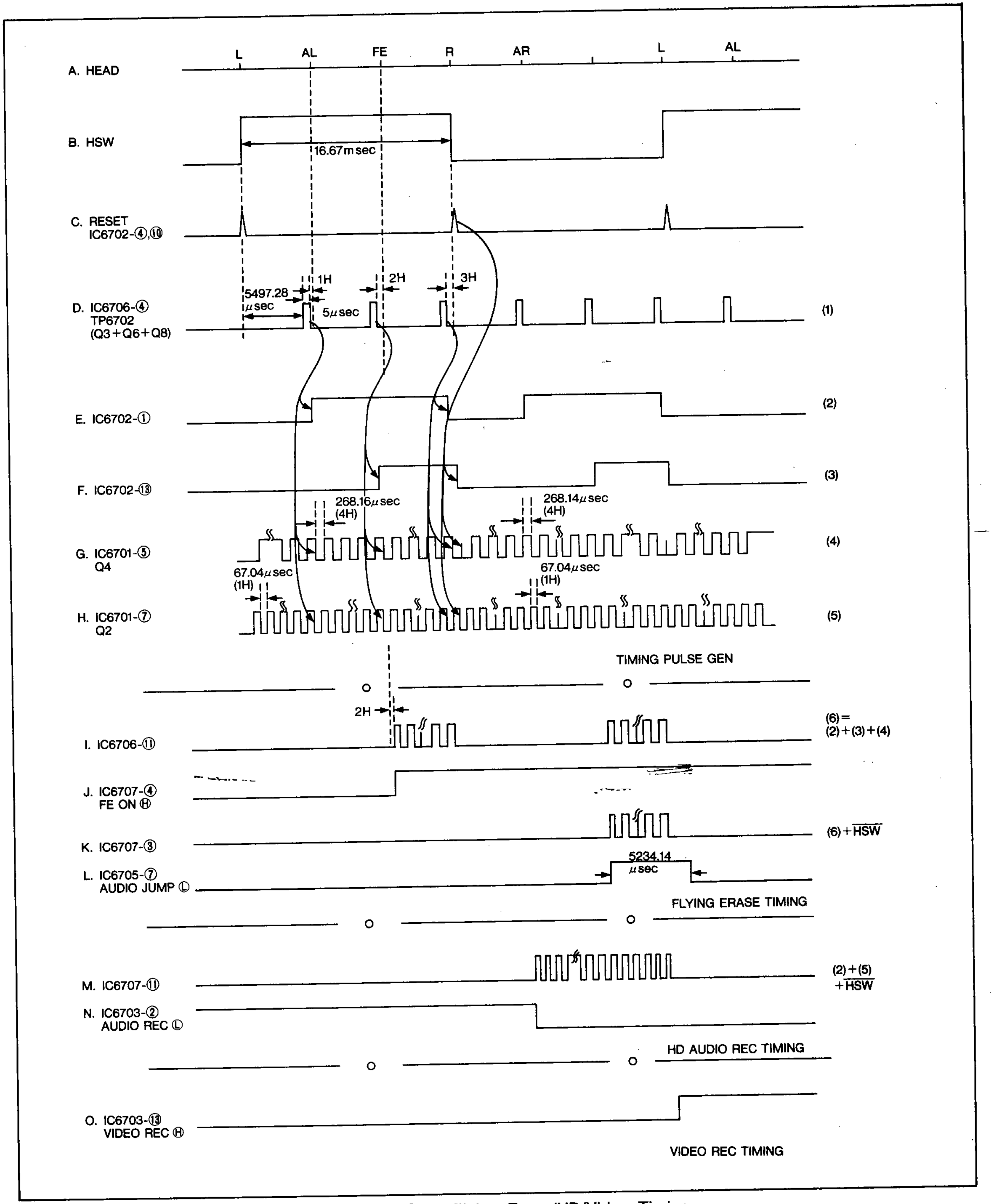


Figure 2–13 Flying Erase/HD/Video Timing

3. SERVO SECTION

As for the cylinder phase control and capstan servo (both phase and speed), these are the same as the AG-6400, so refer to AG-6400 Technical Descriptions, Supplement VRD8610234.

3-1. CYLINDER SECTION

Phase control is done by IC2002 (AN3610NK). In the case of normal playback, speed control is done by IC2101 (MN51005VZQ) and it improves the stability of the cylinder servo-circuit. Excluding the case of normal playback (as in the case of special playback or when the cylinder speed is building up) speed control is done by IC2002 as before (AG-6400).

1) Cylinder Speed Control
   There are two cylinder speed control circuit loops in the AG-7400, IC2101 and IC2002. IC2101 is used in normal cases and IC2002 is used for cylinder start up and in the case of special playback (CUE/REV/slow/still). IC2101 has more bits than IC2002 (IC2101: 10 bits, IC2002: 8 bits) and it enables finer control. Because of this, the stability of the servo-circuit is upgraded, and jitter is decreased. (Actually jitter was largely decreased by the adoption of a ball bearing for the P2 post and tension arm, and the introduction of an impedance roller bearing, in addition to this circuit.) Loop switchover is done by the signal input to pin 5 of IC2101. This signal is derived from the FG signal and the S1 signal coming from pin 36 of IC6001.

   * Decrease in jitter
   The number of bits in the speed error gate circuit has been increased from 8 to 10, which allows finer speed control.

   8 bits ———————— 2 to the 8th=256
   10 bits ——————— 2 to the 10th=1024

   Thus, the speed control precision is upgraded and jitter is decreased.

In IC2101, the standard value (ROM) for special playback is not set, so IC2101 is not used.
As the counter in IC2101 has 10 bits, it takes time for the servo to reach a stable state. When the motor is started, IC2002 is used to stabilize the servo quickly. (IC2002 is 8 bits).

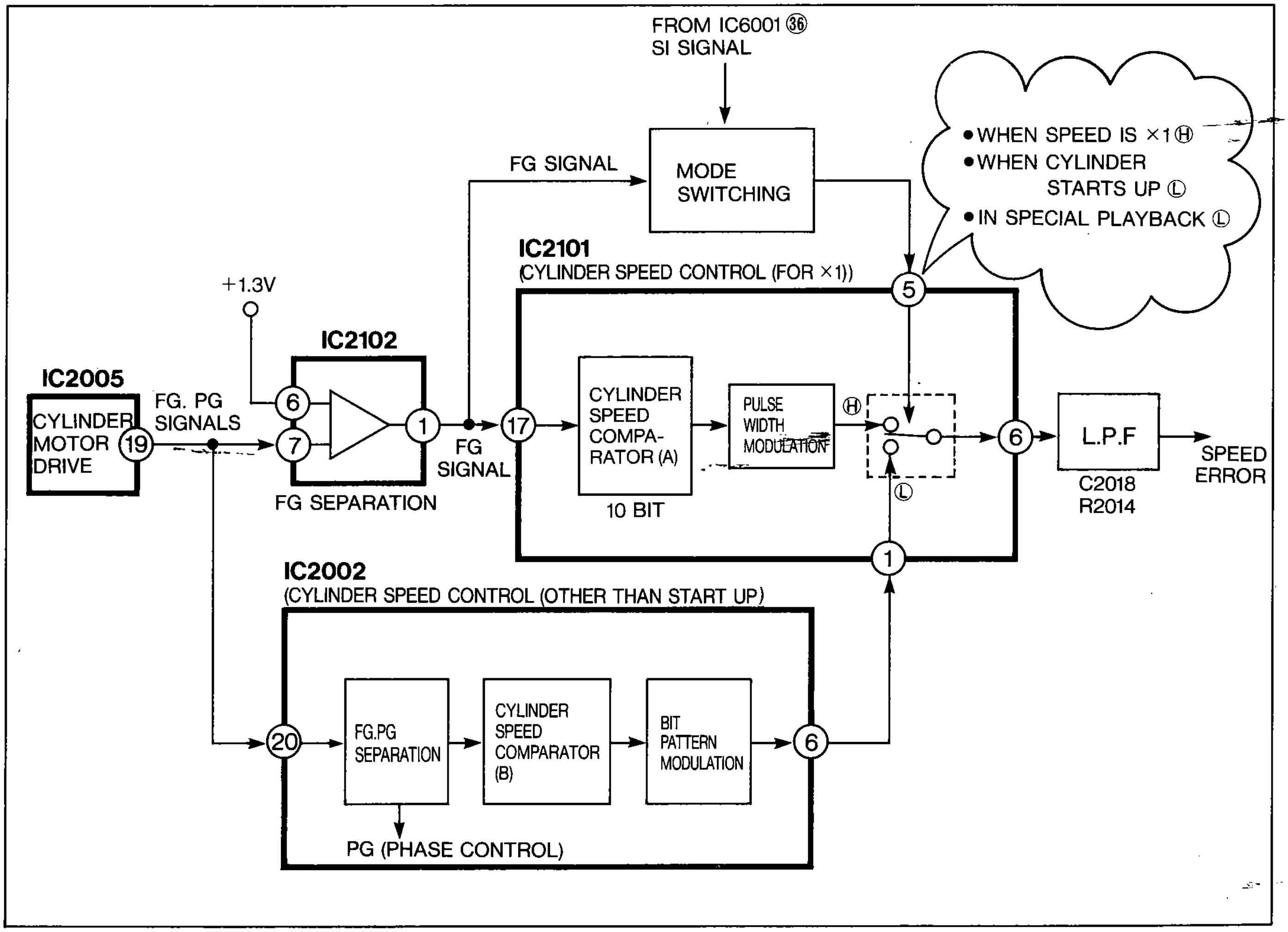


Figure 3—1 Cylinder Speed Control Circuit

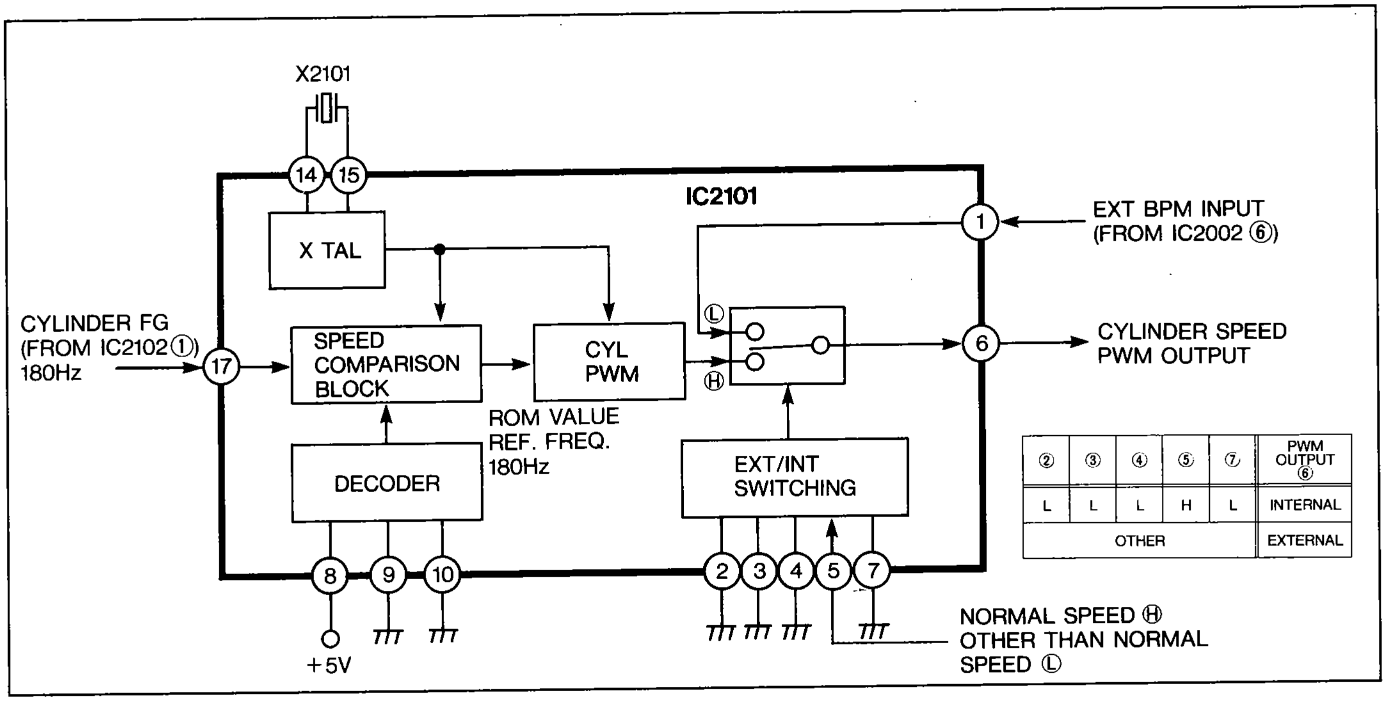


Figure 3–2 IC2101 Block Diagram

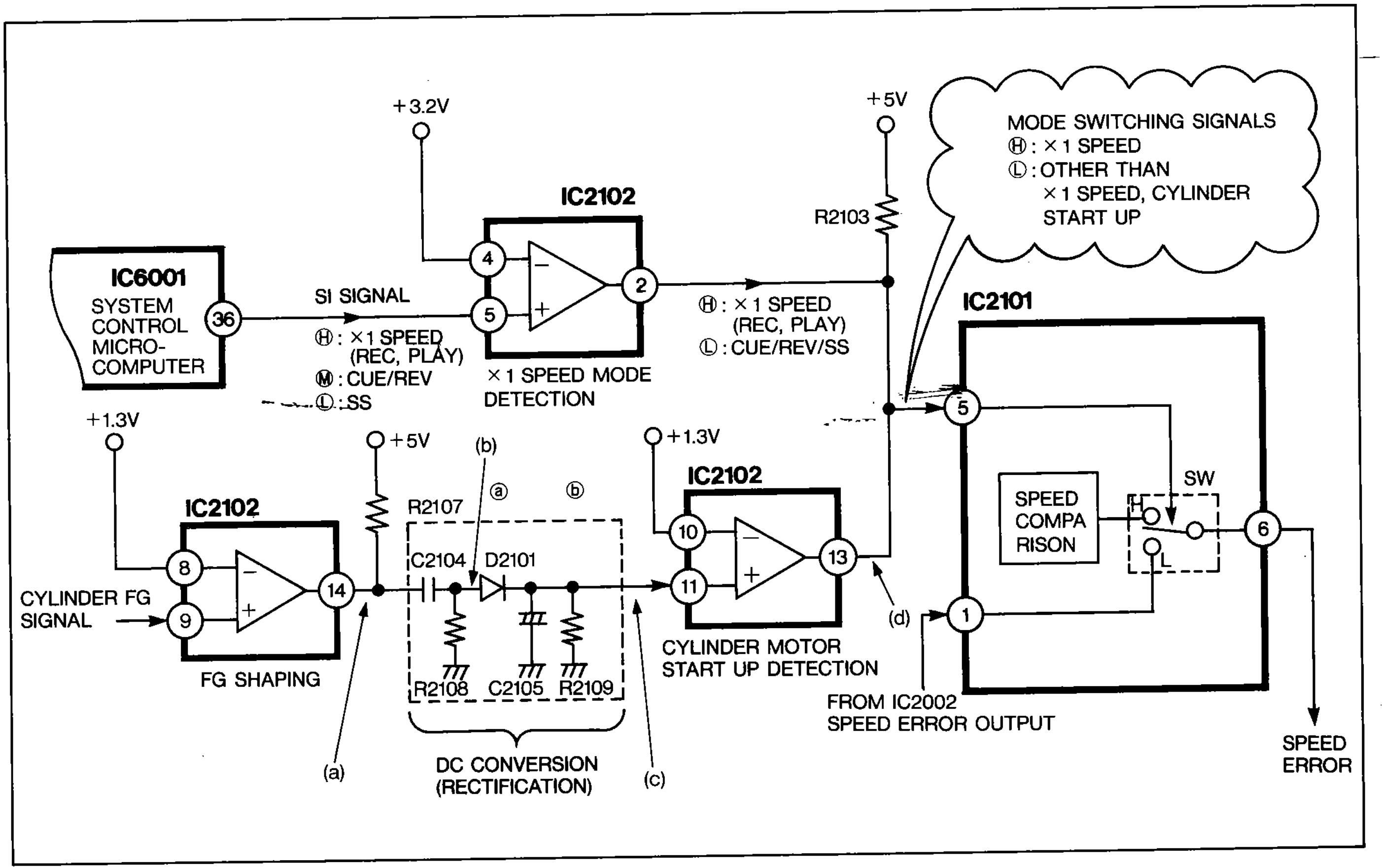


Figure 3–3 Mode Changeover Circuit

2) The speed control mode changeover signal Both the normal speed mode and the cylinder acceleration detection outputs are input to pin 5 of IC2101. In this case if one input is "L", the other one is disabled. Therefore, only when both outputs are "H", a "H" input is sent to pin 5 of IC2101. This is the normal speed case. When the cylinder is in a stable state, a "H" is input to pin 5 of IC2101. By this input, the SW is switched to the speed control side.
In cases other than normal speed, or when the cylinder motor is accelerating, a "L" is input to pin 5 of IC2101, SW is switched to the speed control side, (IC2002).

3) Mode changeover circuits

A. Detection of normal speed mode
The S1 signal for mode discriminantion is input to pin 5 of IC2102 from pin 36 of IC6001. Here it is compared with standard 3.2V, and if the voltage is higher than the standard, A "H" signal is output from pin 2 of IC2102, and in other cases (in special playback) an "L" is output.

B. Detection of cylinder motor acceleration.
(1) The FG signal input to pin 9 of IC2102 is output from pin 14 after waveform shaping.
(2) The FG signal output from pin 14 goes through differential and integral circuits (inside the dotted line in Figure 3–3) and is converted to a DC voltage.
At this time, if the FG period is long (when the cylinder speed is building up) the DC voltage is low (lower than 1.3V), but if the period is short, DC voltage becomes high (more than 1.3V).
(3) This DC voltage is input to pin 11 of IC2102 and compared with the standard voltage (1.3V) by the comparator. If it is higher than 1.3V, a "H", and if it is lower than 1.3V, a "L" is output from pin 13 of IC2102. In other words, when the cylinder is starting up, a "L" is output and in the stable state a "H" is output.

IC6001 ㊱ (SI SIGNAL)	IC2102 ② (OUTPUT)
Ⓗ ×1 SPEED	Ⓗ
Ⓜ CUE/REV	Ⓛ
Ⓛ SS	Ⓛ

Figure 3–4 Truth Table of IC2102

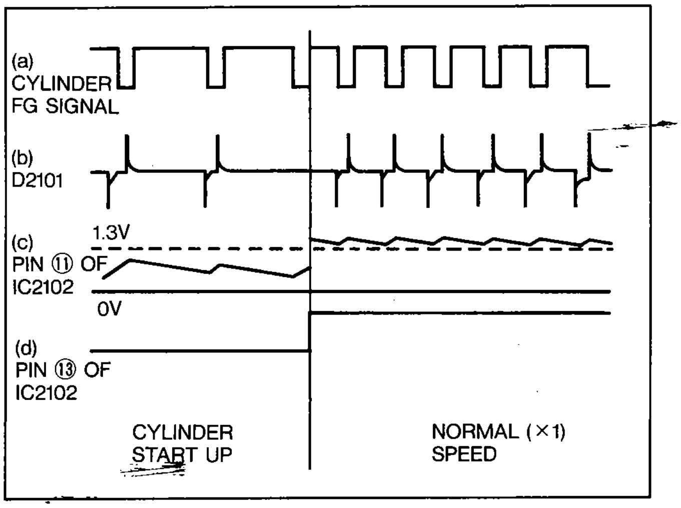


Figure 3–5 Detection of Cylinder Motor Acceleration

		CONDITIONS OF SI		
		Ⓗ ×1 SPEED	Ⓜ CUE/REV	Ⓛ SS/FF•REW
CONDITIONS OF FG	Ⓛ CYLINDER MOTOR START UP	Ⓛ (IC2002 SPEED CONTROL IS USED)	Ⓛ (IC2002 SPEED CONTROL IS USED)	Ⓛ (IC2002 SPEED CONTROL IS USED)
	Ⓗ CYLINDER MOTOR STABILIZED	Ⓗ (IC2101 SPEED CONTROL IS USED)	Ⓛ (IC2002 SPEED CONTROL IS USED)	Ⓛ (IC2002 SPEED CONTROL IS USED)

Figure 3–6 Cylinder Speed Control Modes (IC2101 ⑤)

4. REEL SERVO SECTION

4–1. FILTER SWITCHING CIRCUIT

The purpose of this circuit is to avoid reel hunting in the rewind mode.
IC2504 is a comparator which converts 3 different voltage levels into 2 levels, (H) and (L). QR2504 is turned ON by (H) output fed out from pins 13 and 14 of IC2504, while it is ON, it causes C2528 to change the time constant in the DC conversion circuit via pin 6 (supply side) of IC2501. 3V appears at pin 8 of IC2504 and 1.4V at pin 11.

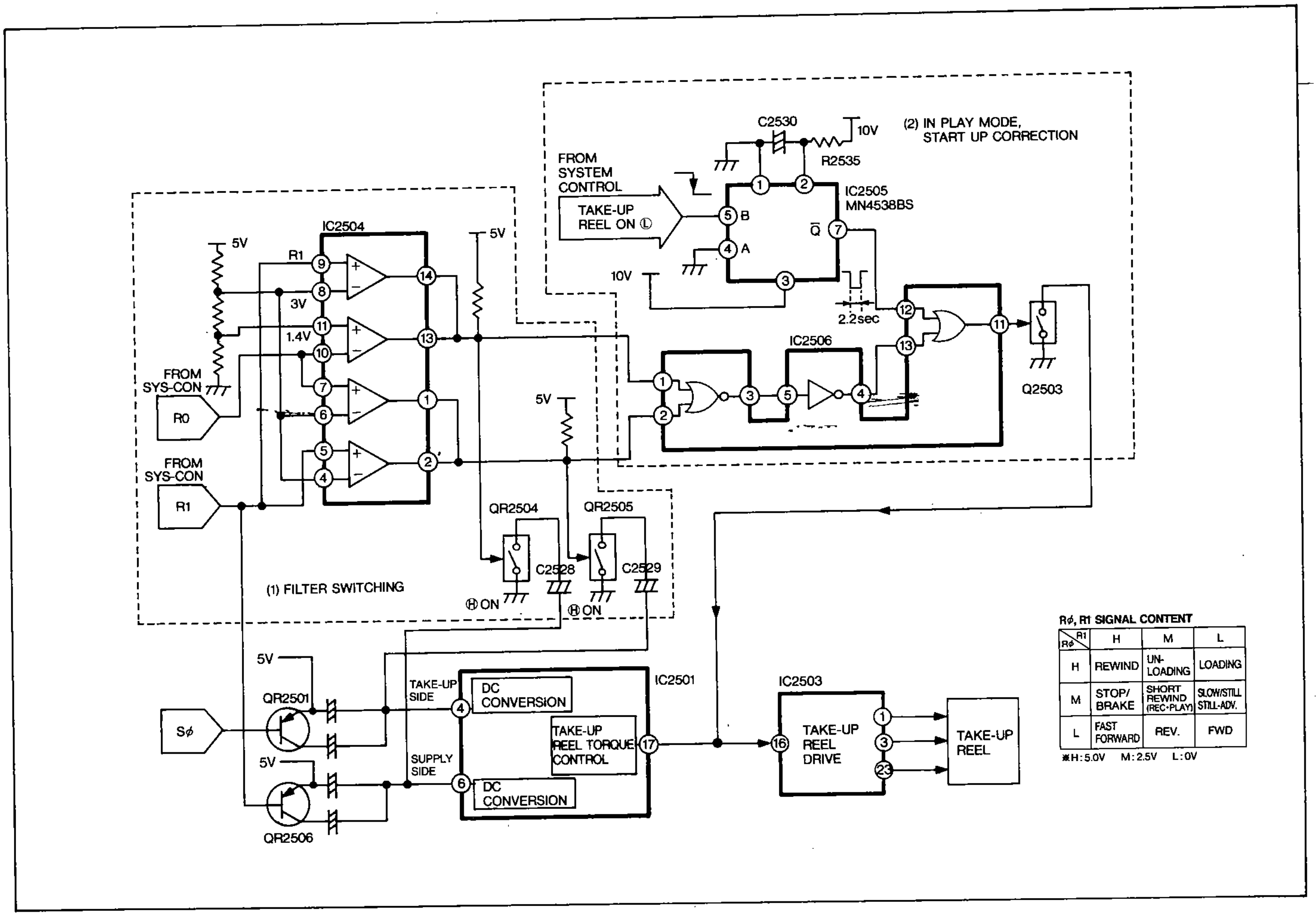
* QR2505 is turned ON by a (H) output sent from pins 2 and 12 of IC2504. While QR2505 is ON, it causes C2529 to change the time constant of the DC conversion circuit via pin 4 (take-up side) of IC2501.

In addition to these comparison voltages, as shown in figure 4–1, the mode is selected by R1 (H), R0 (H) or (M). etc. Thus, while rewinding or braking, the filtering characteristic of pin 4 (take-up reel side) of IC2501 is changed to make the time constant faster.
In the Rewind mode, the comparison voltage at pins 6 and 4 of IC2504 is 3V, and R1 and R0 become (H). Thus, while rewinding, the filtering characteristics of the pin 6 of IC2501 are changed to make the time constant faster.

4–2. START UP PROTECTION IN PLAY MODE

The purpose of this circuit is to reduce the take-up tension at the start-up point of the play mode to avoid tape damage.
In this circuit, when the PLAY mode starts up, by turning Q2503 ON the take-up reel torque at pin 17 of IC2501 is reduced to protect the tape.
The condition when Q2503 is turned ON is that both pins 1 and 2 of IC2506 become (L) and take-up reel ON (L) is input to pin 5 of IC2505.

* The outputs from pins 2, 12, 13, and 14 of IC2504 are input to pins 1 and 2 of IC2506, and both 1 and 2 become (L) only when R0 and R1 are (L) (Record/Playback) as shown in figure 4–1.
Pin 12 of IC2506 is put into (L) by the take-up reel on (L).



Rϕ, R1 SIGNAL CONTENT

Rϕ \ R1	H	M	L
H	REWIND	UN-LOADING	LOADING
M	STOP/ BRAKE	SHORT REWIND (REC·PLAY)	SLOW/STILL STILL-ADV.
L	FAST FORWARD	REV.	FWD

✱H: 5.0V M: 2.5V L: 0V

Figure 4–1 Reel Servo

5. VIDEO SECTION

The following circuits are explained in this section as new circuits:

1. YC separation circuit
2. Non-Correlation Detection circuit
3. Sub-Emphasis / Sub-Deemphasis circuit
4. S-VHS Detection circuit
5. Frequency Equalization circuit (S-VHS/VHS)
6. YC Filter circuit
7. Enhancer circuit

5-1. YC Separation Circuit

[Outline]
AG-7400 executes YC separation of the input composite signal using the line correlation method. In video signals of the NTSC system, the luminance signal in each 1H is in-phase and the color signal is negative-phase as shown in figure 5-2. By adding and subtracting these adjacent signals, luminance and color signals can be separated. Consequently, a separating system mixing 1H delayed signal with the original signal is adopted. For the 1H delay line, an accurate CCD circuit is used.

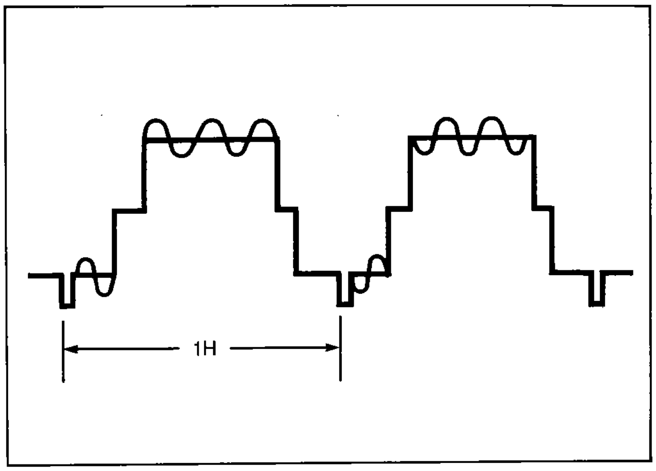


Figure 5-2 NTSC Signal

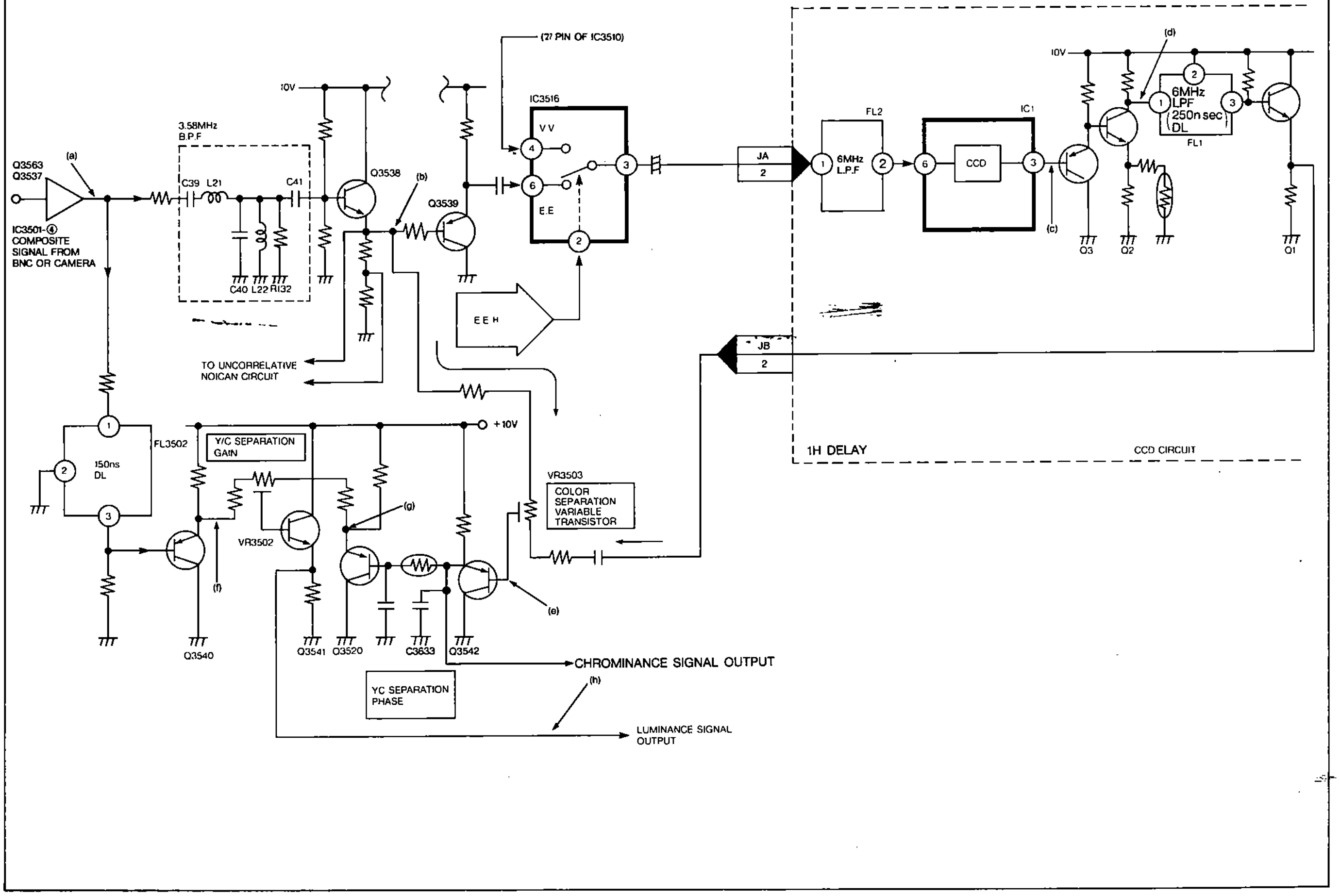


Figure 5-3 YC Separation

e video circuit overall block diagram is shown
Figure 5–1.

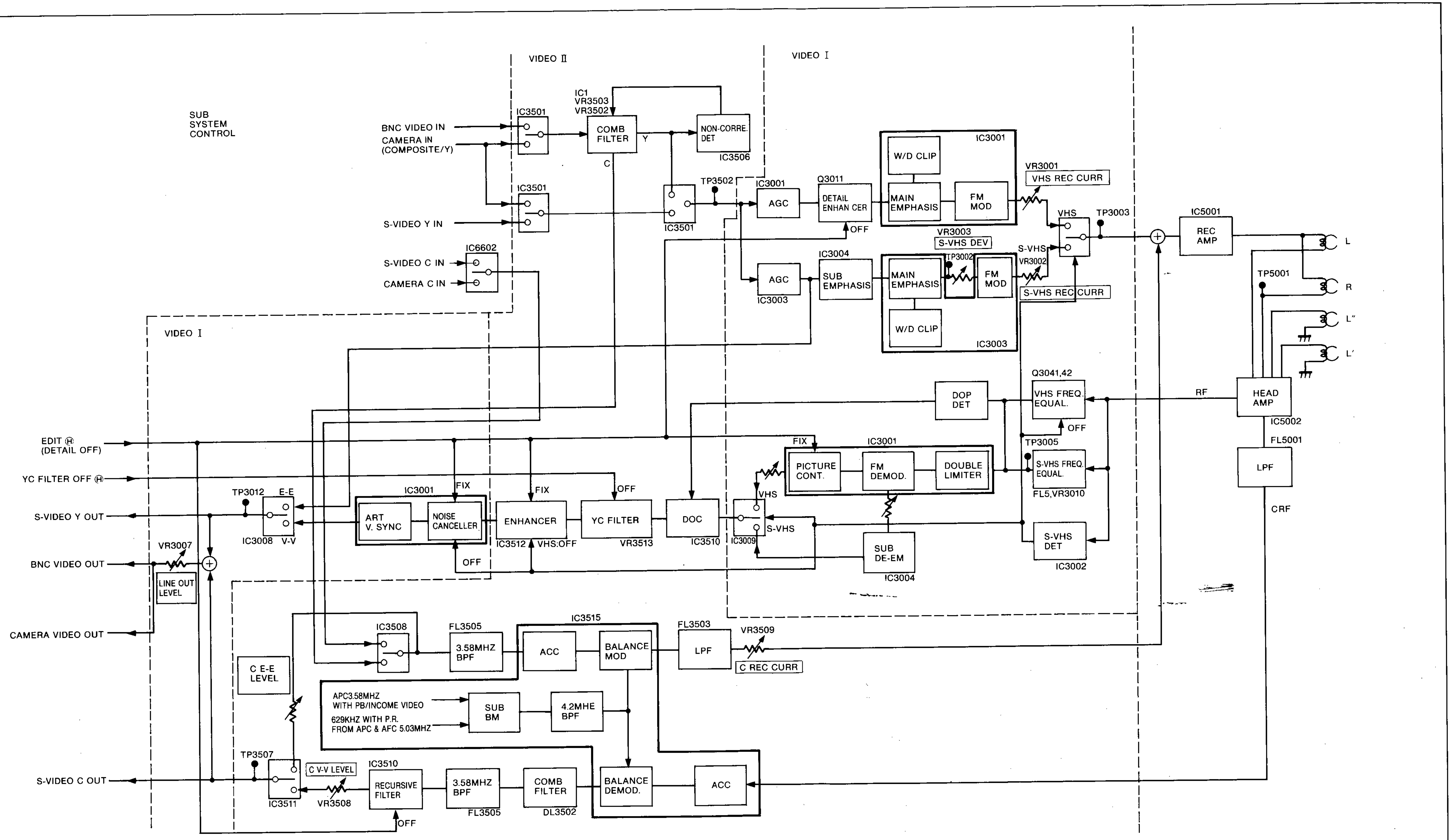


Figure 5–1 Video Overall Block Diagram.

Figure 5–1 Video Overall Block Diagram

eration]
mixed signals (composite signals) such as the C input or 10 pin camera are input into the YC arating circuit. Component signals such as the input terminal or 14 pin camera input do not s through the YC separating circuit.

The 4th pin output signal of IC3501 is amplified in Q3563 and Q3537, and divided to two directions.
FL3502 is the main line and 3.58MHz B.P.F. is the 1H delay line.
1H delay line ... This line starts from Q3537, and passes through B.P.F. (3.58 MHz), where only the 3.58MHz component can be extracted. This signal, thereafter, passes through the CCD circuit and is delayed by 1H.

4) Color separation ... The 1H delayed signal of CCD output is mixed with the output signal of Q3538 by VR3503.
   * Luminance components of the Q3538 output signal and 1H delayed signal are signals which cannot be removed in 3.58 MHz B.P.F.

5) Y/C separation ... The signal extracted at VR3503 is mixed by adding at VR3502 with the video signal which is output and delayed 150 nsec in FL3502.

   * At this time, a variable capacitor is used for phase compensation at the base of Q3520 to adapt the phase of the color component (Q3520 output) to the phase of the video signal.

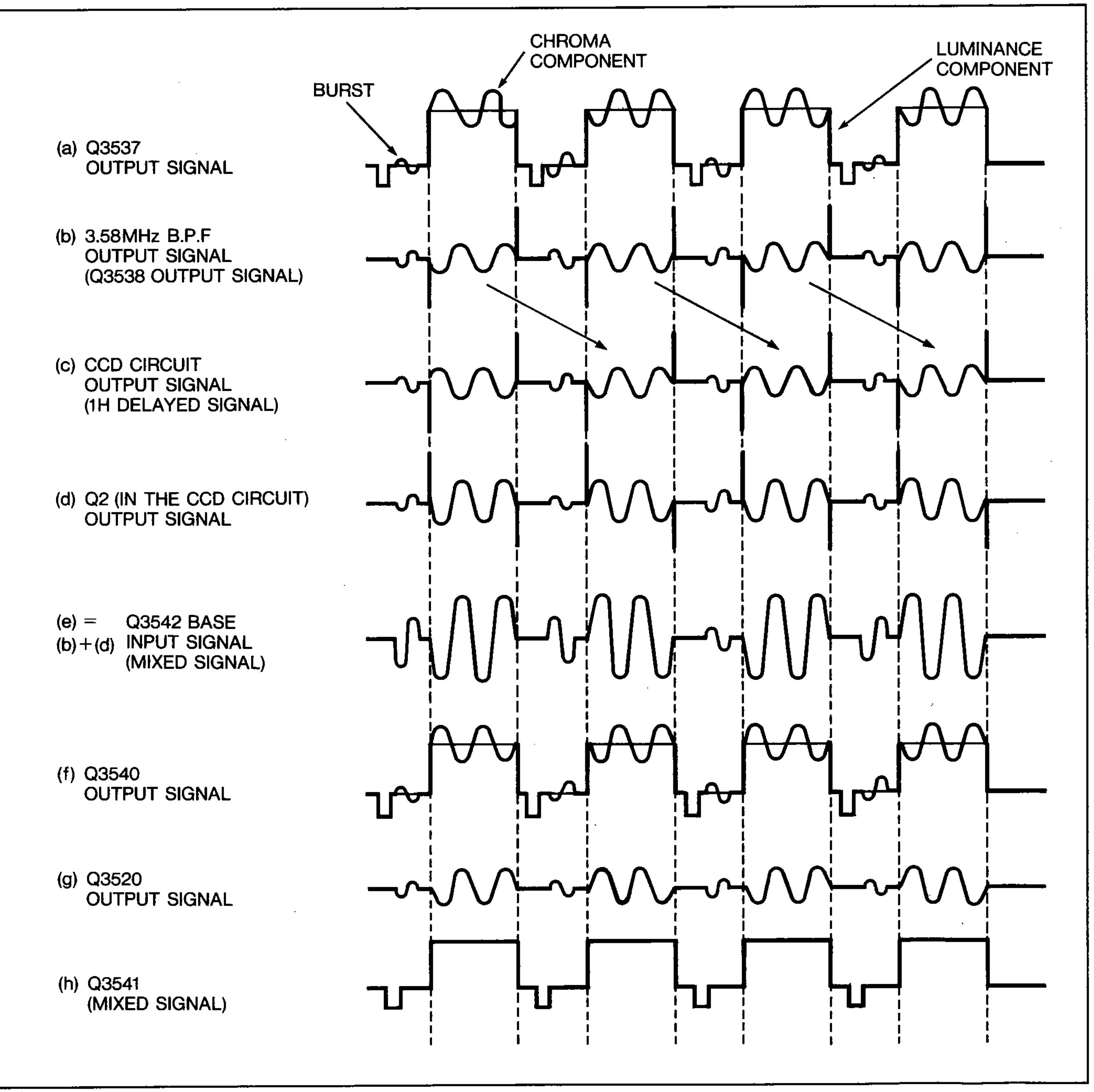

CHROMA COMPONENT
LUMINANCE COMPONENT
BURST
(a) Q3537 OUTPUT SIGNAL
(b) 3.58MHz B.P.F OUTPUT SIGNAL (Q3538 OUTPUT SIGNAL)
(c) CCD CIRCUIT OUTPUT SIGNAL (1H DELAYED SIGNAL)
(d) Q2 (IN THE CCD CIRCUIT) OUTPUT SIGNAL
(e) = (b)+(d) Q3542 BASE INPUT SIGNAL (MIXED SIGNAL)
(f) Q3540 OUTPUT SIGNAL
(g) Q3520 OUTPUT SIGNAL
(h) Q3541 (MIXED SIGNAL)

Figure 5–4 YC Separation Operation

5–2. Noncorrelation Detection Circuit

1) Necessity of Non–correlation Detecting Circuit

Y/C separation of AG–7400 is executed using line correlation of the video signal as described before.

Consequently, in the non–correlative portion without line correlation in Figure 5–6 (boundary line between colored lines and colorless lines), chroma may leak into the Y signal.

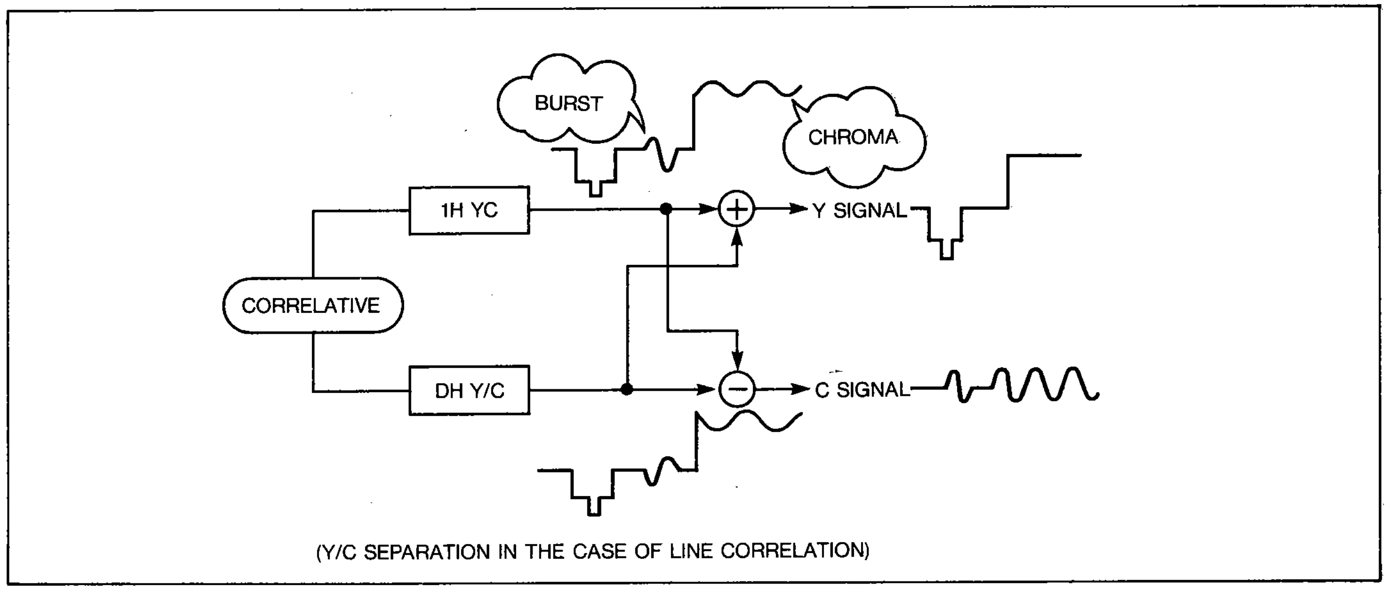


Figure 5–5 Y/C Separation in Case of Line Correlation

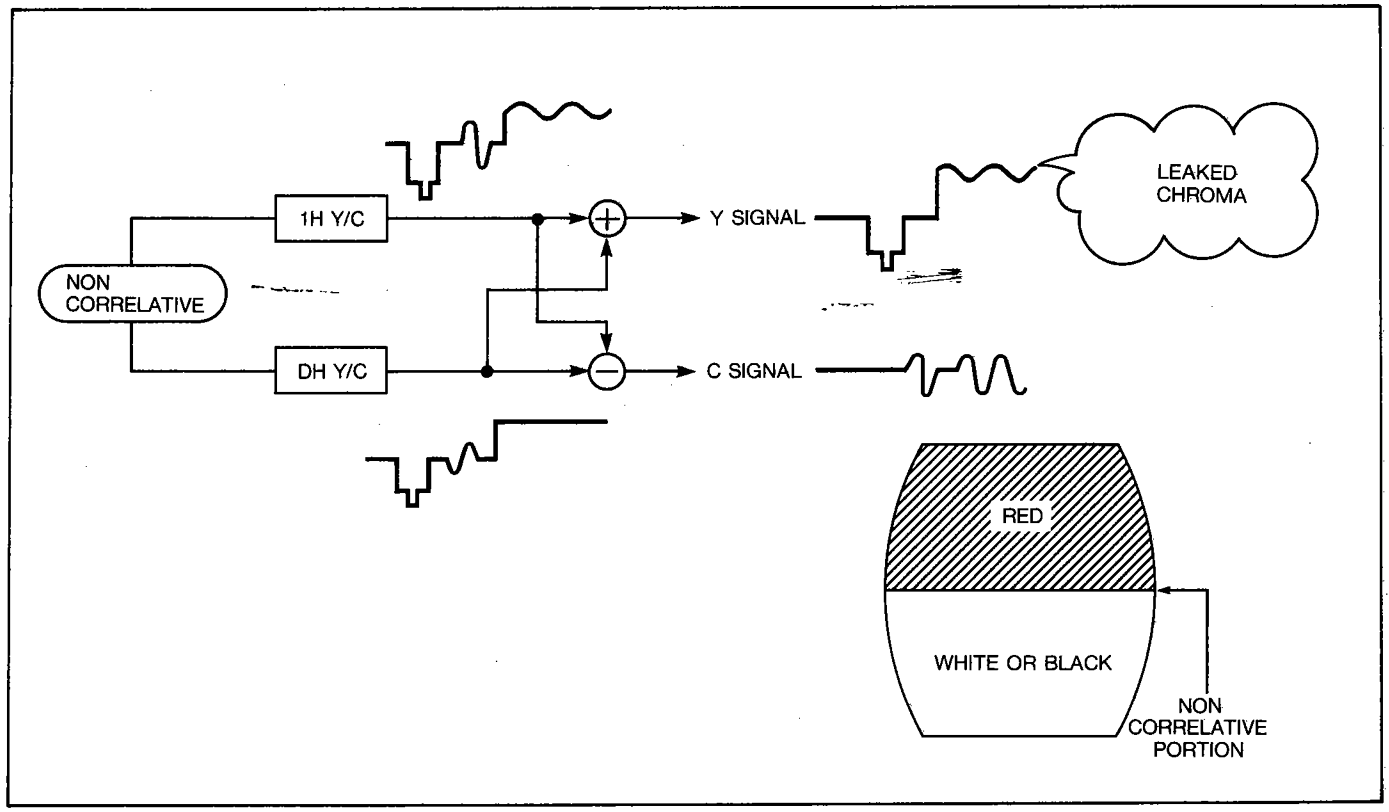


Figure 5–6 Y/C Separation in Case of No Line Correlation

If a chroma component is leaked into a Y signal, dot disturbance occurs on the screen in playback. This non–correlation detection circuit detects non–correlative leaked chroma and then generates a non–correlative pulse to prevent dot disturbance.

2) Role of Non–correlative Pulses (non–correlative pulse and burst gate pulse)

A. Rejection of Y/C Separating Circuit

When non–correlation occurs, an auto–detection circuit sends a logic H pulse, 2H wide to Q3507. During color record, Q3510 is also on, causing a logic L on IC3504 pin 2 selector. The combed signal, normally selected at pin 6 now disconnects, and direct chroma from pin 4 is selected for a 2H period.

B. Turning on the Trap Circuit

During non–correlation, the separated Y signal may contain unwanted chroma leakage. The same logic L from Q3507 now turns Q3560 off, activating a 3.58 MHz chroma trap for a 2H period. This protects the Y signal and minimizes cross–chroma disturbances recorded on–tape.

C. Overview

These circuits are dynamic in nature, continually checking all video lines during each video field for non–correlation. The previous circuits then auto–select the best case Y and C signals to be recorded for any 2H period, especially at each transition of entering or leaving a video scene area having no chroma. By this method, S–VHS recordings offer best case playback into any Y/C monitor, free of cross–color and chroma dot interference.

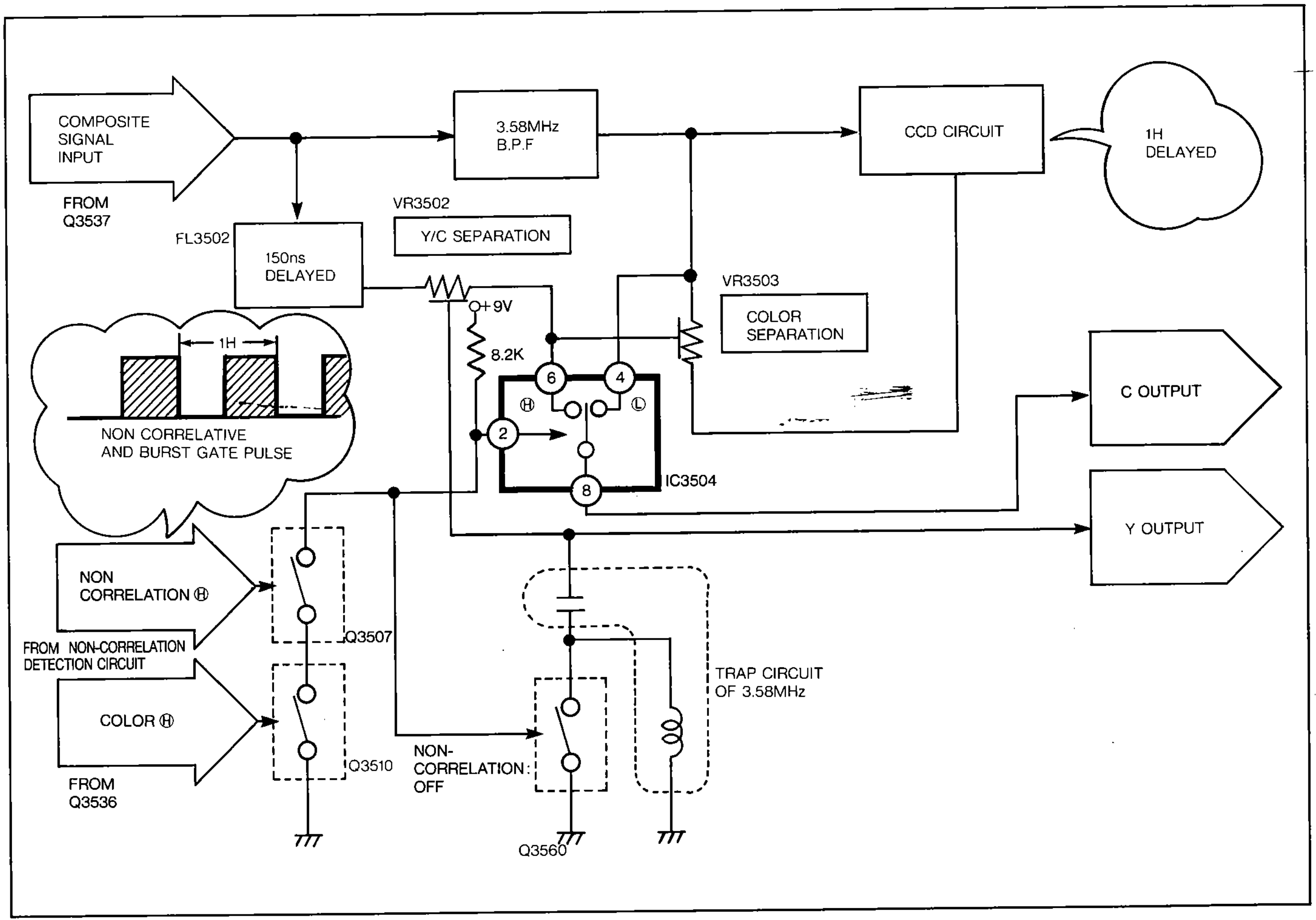


Figure 5–7 Rejection of Y/C Separating Circuit

3) Generation of Non–correlative Pulses (non–correlative pulse and burst gate pulse)

The Y separate signal is input to pin 6 of IC3505. This signal has no color component in case of correlation, but becomes a signal including leaked color in case of non–correlation.

* OH chroma is input to pin 4, because the burst gate pulse from pin 2 switches to pin 4 during burst and only a color burst signal uses this OH chroma signal.

The 1H DL circuit (DL3502) forms a comb filter, and pin 3 outputs only chroma signals. (No output in case of correlation and output in case of Non–correlation)

In case of non–correlation, leaked chroma will output from DL3502, and the color component is amplified by the 3.58 MHz peaking circuit composed of Q3512, C70, and L20, then supplied to ACC of IC3506.

The ACC output signal is amplified with peaking again by FL3507 and input to the waveform shaping circuit composed of Q3516 – Q3518. The signal from which the waveform is shaped becomes a non–correlative pulse. This 2H wide pulse is sent to Q3507, in Figure 5–7.

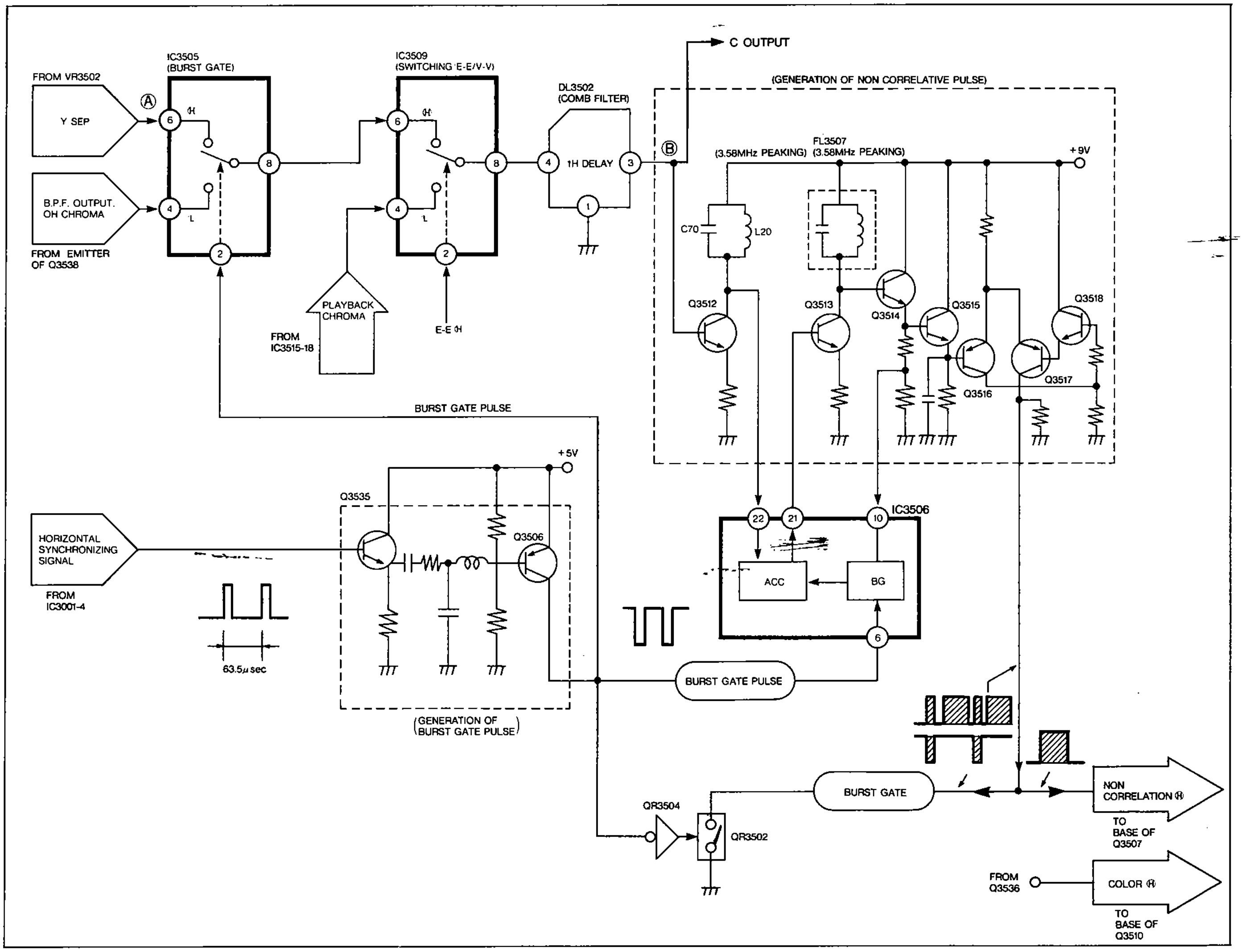


Figure 5–8 Non-Correlation Detection

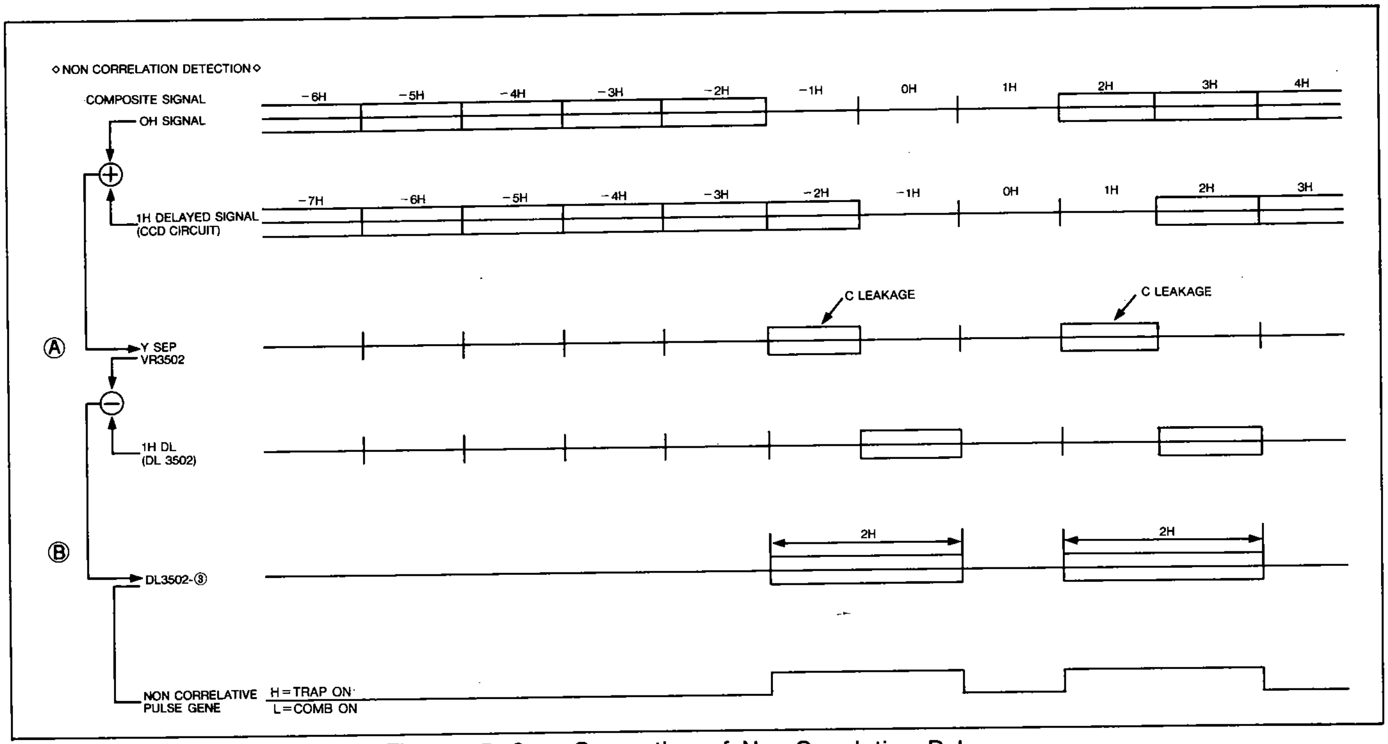


Figure 5–9 Generation of Non-Correlation Pulse

5–3. Sub–emphasis/Sub–deemphasis circuit

In the VHS system, the detail enhancer circuit has been used to emphasize the high frequency portion of the low level signals.
Now to get a clearer picture in the S–VHS system, the sub–emphasis circuit in the recording process, and the sub–deemphasis circuit in the playback process have been adopted.

Using these circuits, the gain of high frequencies is increased by 10dB in the recording process.
The circuit and characteristics are shown in Figures 5–10 and 5–11.

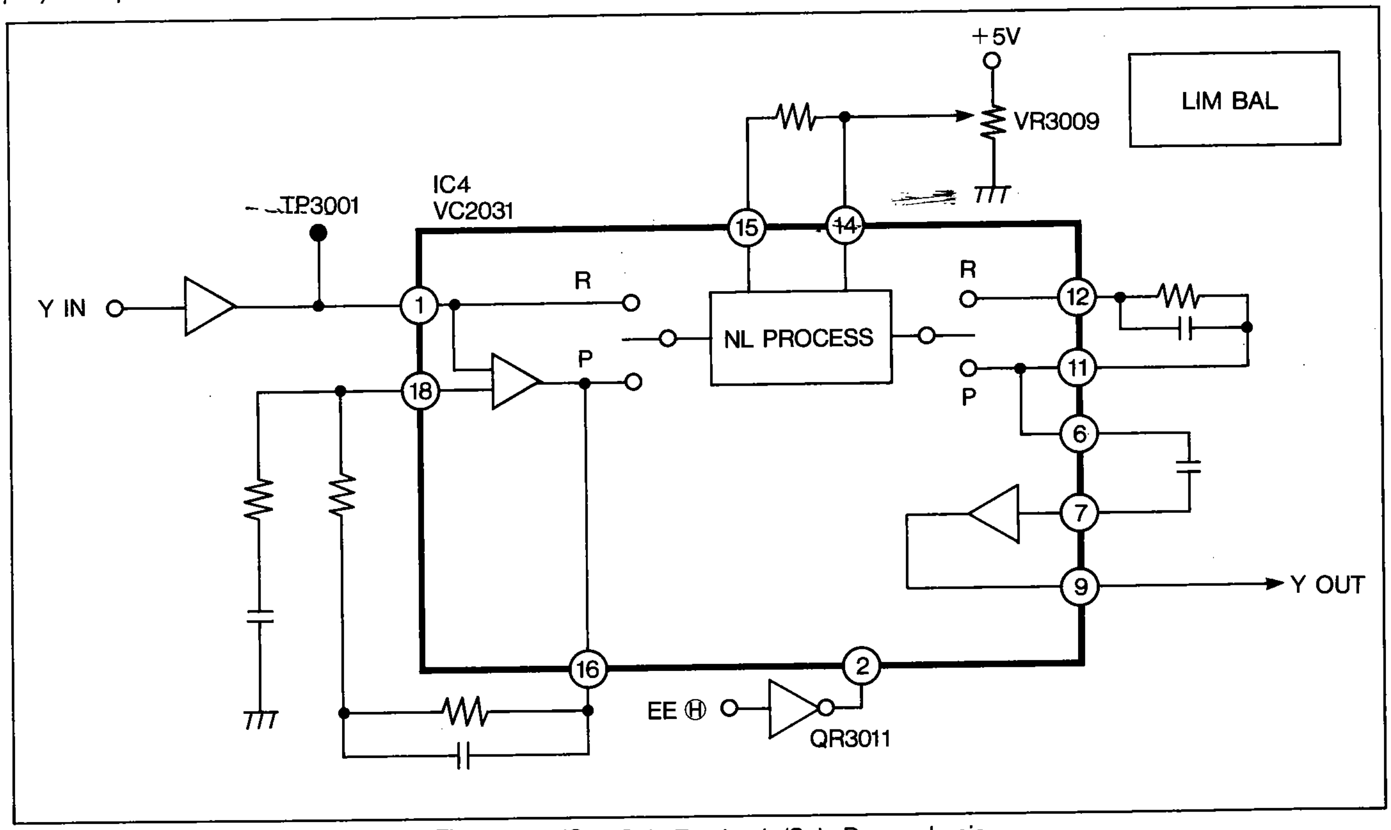


Figure 5–10 Sub Emphasis/Sub De-emphasis

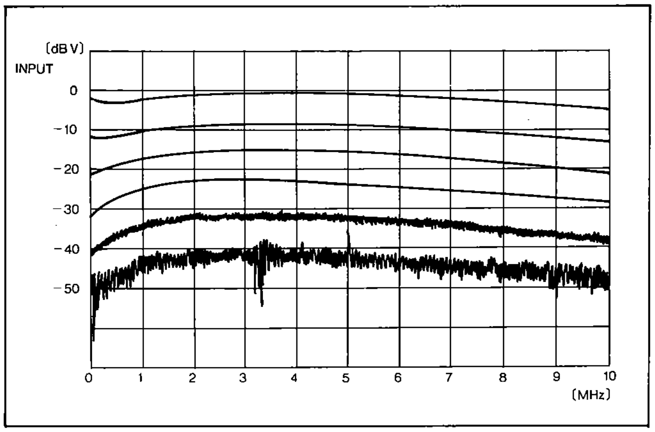


Figure 5–11 (A) Characteristics of Sub Emphasis

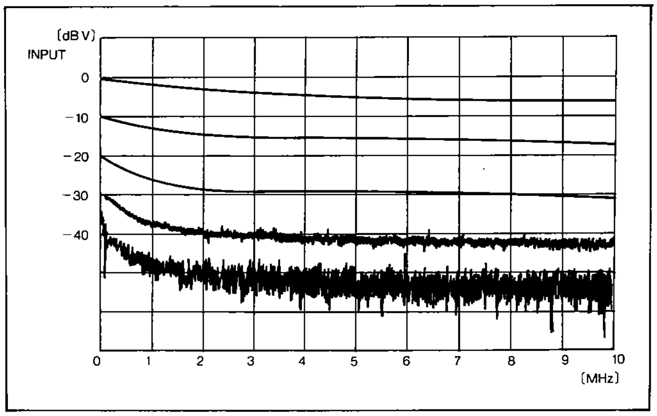


Figure 5–11 (B) Characteristics of Sub Deemphasis

5–4. S–VHS Detection circuit

This model can record and play back the video signal in the VHS or S–VHS mode.
For S–VHS recording, 2 conditions must be met.:
1) An S–VHS tape with the ID hole must be used.
2) The S–VHS switch must be ON.
S–VHS playback is activated by cassette ID hole detection, and a special modulation frequency detector.

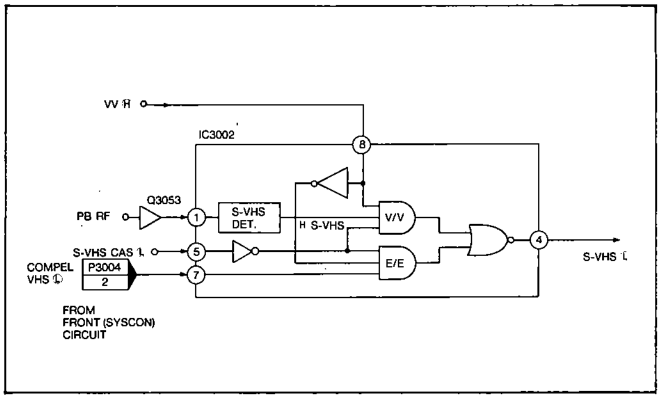


Figure 5–12 S-VHS Detection

5–5. PLAY BACK FREQENCY EQUALIZER CIRCUIT

The playback RF signal is amplified by the head amplifier circuit and input via pin 3 of connector P3002 to the video (I) circuit.

This circuit makes the entire frequency response flat by De–emphasizing those components of the frequency spectrum that were emphasized during the recording process.
This circuit has both the S–VHS signal correction circuit and a VHS signal correction circuit, and also helps prevent phase delay of the high band signal on the S–VHS path.
However, since phase delay tends to occur at peak white only when the FM frequency is high (7MHz), this correction is not provided at the normal VHS FM frequency (4.4MHz).

1) S [VHS] path
   The circuit corrects for 7MHz phase delay by delaying the FM signal by 80nsec, via FL3005, and mixing this signal with the original one via VR3010.
   Q3018 is switched ON during slow/still modes, thereby removing the 8MHz LPF. When this filter is turned OFF, the high frequency band is brought up in level to prevent picture deterioration.

2) [VHS] path
   On the VHS side, with the use of peaking or traps, the overall frequency response is compensated. QR3010 is used for the switching of VHS/S–VHS modes, and is turned ON in the S–VHS mode to ground the output signal.

5–6. YC Filter circuit

This circuit is in the luminance playback circuit. The purpose of this circuit is to prevent luminance signals around 3.58MHz from interfering with the chrominance signal.
The YC filter switch on the back panel should be turned OFF when playing back tapes recorded through the S–Video input, or camera input, in case the digital comb filter has already been used in the camera, and the Y and C components are already separated. The switch should be on in all other cases.

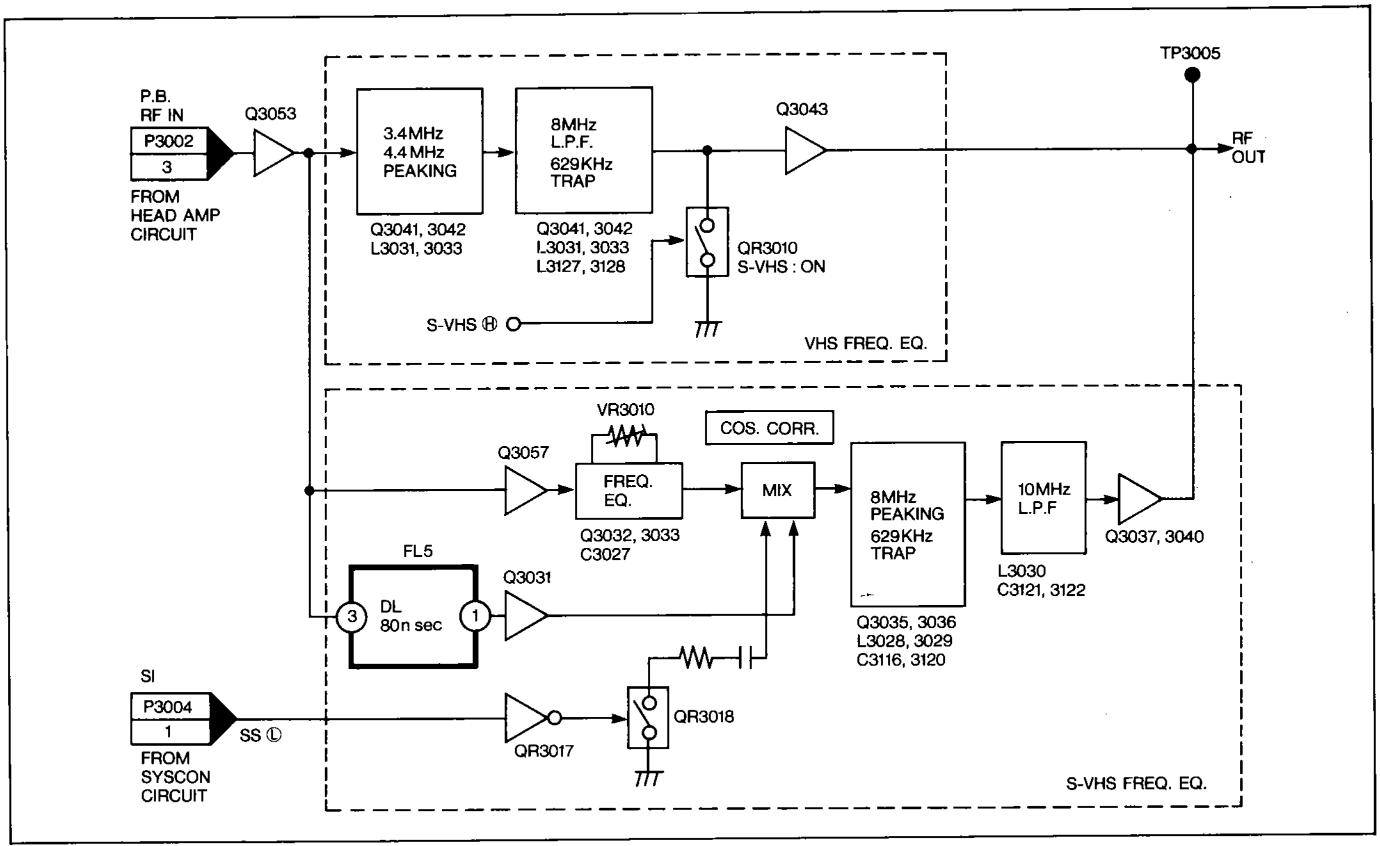


Figure 5–13 P.B. Frequency Equalizer

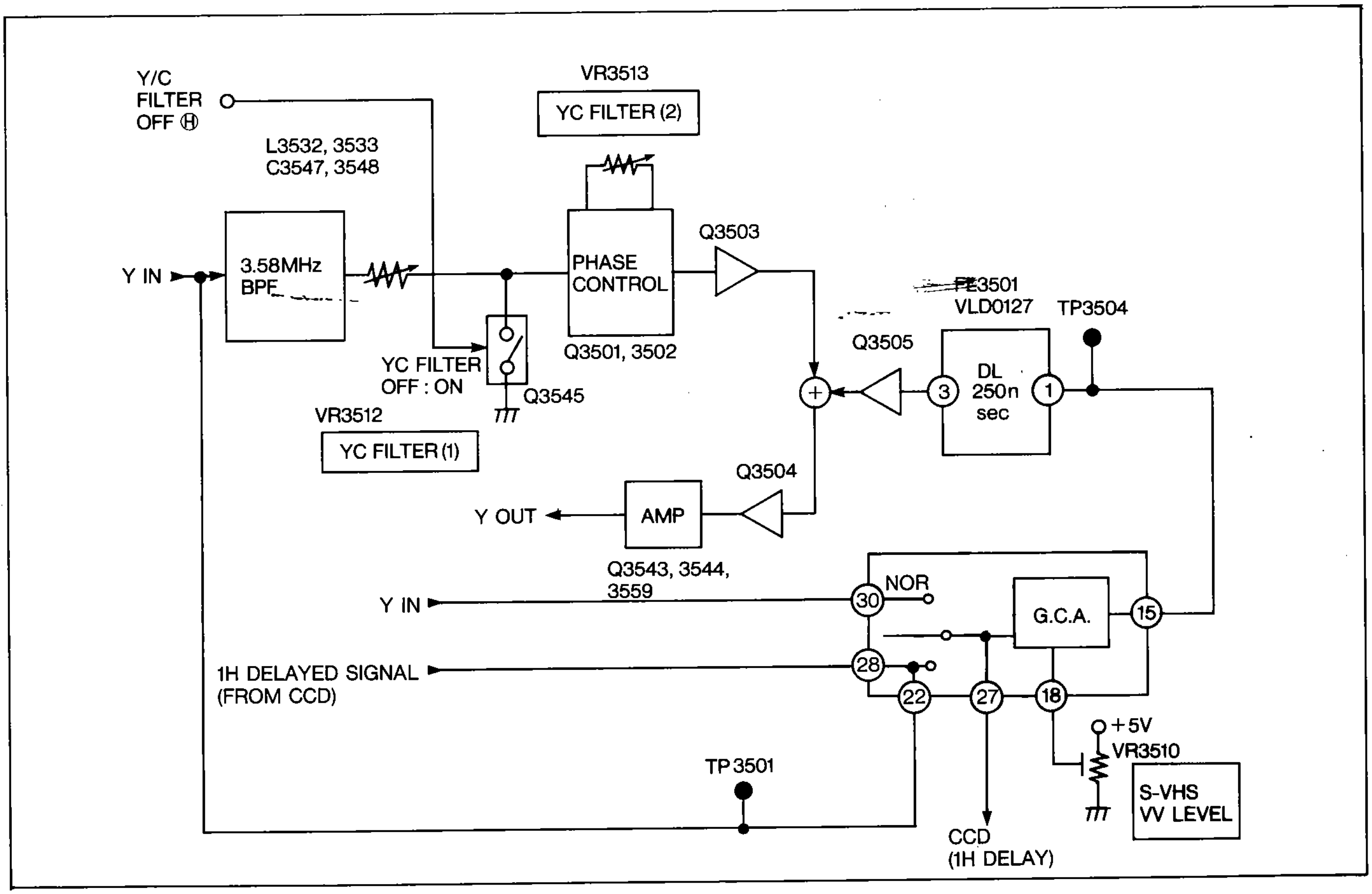


Figure 5–14 Y/C Filter Circuit

5–7. Enhancer circuit

Output signal from the YC filter circuit is next sent to the enhancer circuit to improve picture quality by enhancing all horizontal edges of the luminance signal.

Luminance signal is supplied to pin 3 of IC3512 then clamped and divided to two paths. Clamped signal is filtered by LPF and mix with the processed signal in the main path.

On the other hand, the clamped signal is sent to the sync eliminator circuit, then differentiated to output only the luminance edges at pin 1. This signal re–enters pin 7 into the lower limiter or dark clip circuit, ensuring that excessive negative overshoots will not disrupt the Y sync pulse. Finally, Y edge detail is added to the original Y, creating an enhanced Y available at the cmos selector.

Pin 9 of IC3512 controls the internal switch and level of the differentiation.

In the VHS mode, pin 9 of IC3512 goes low, consequently, the switch is set to normal position.

In the EDIT mode (Detail switch OFF mode), the internal switch is set to EDIT position.

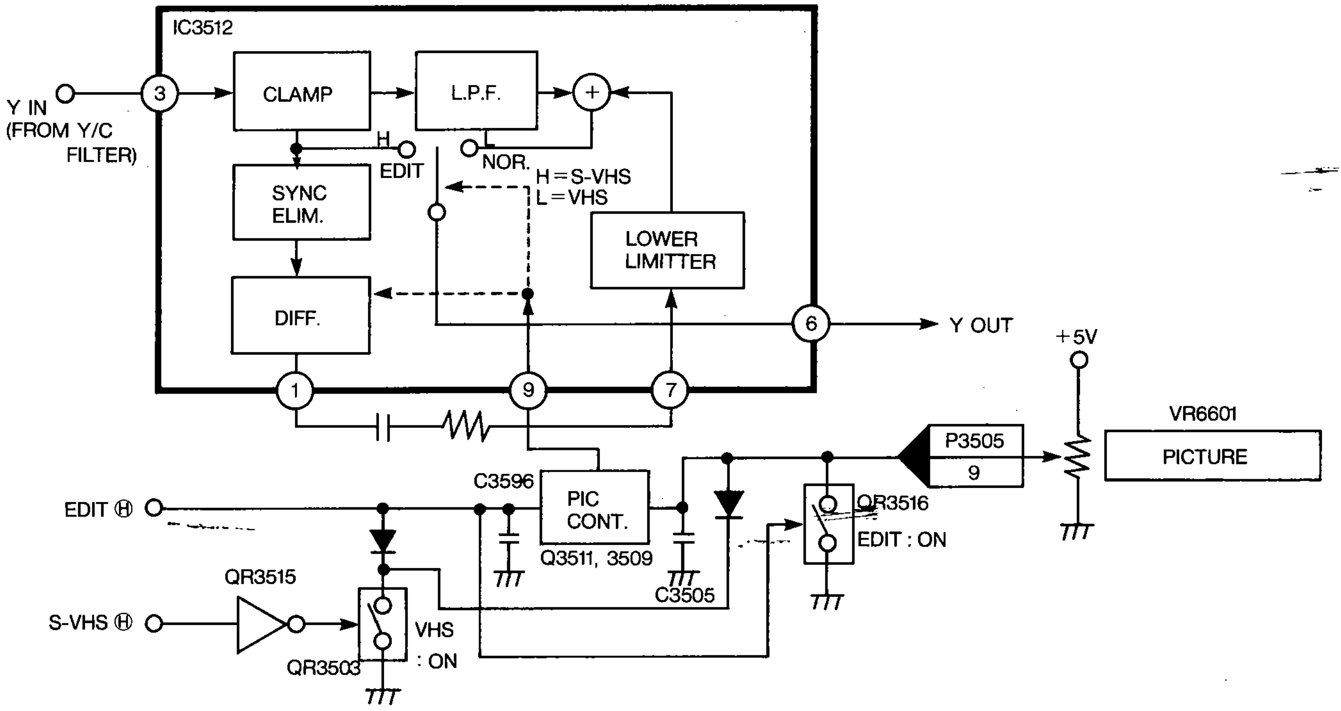


Figure 5–15 Enhancer

6. NORMAL AUDIO SECTION

The magnetic characteristics of S–VHS tape are widely modified in comparison with earlier VHS tape. Consequently, AG–7400 records on S–VHS tape with approximately 30% more recording bias compared to the AG–6400.

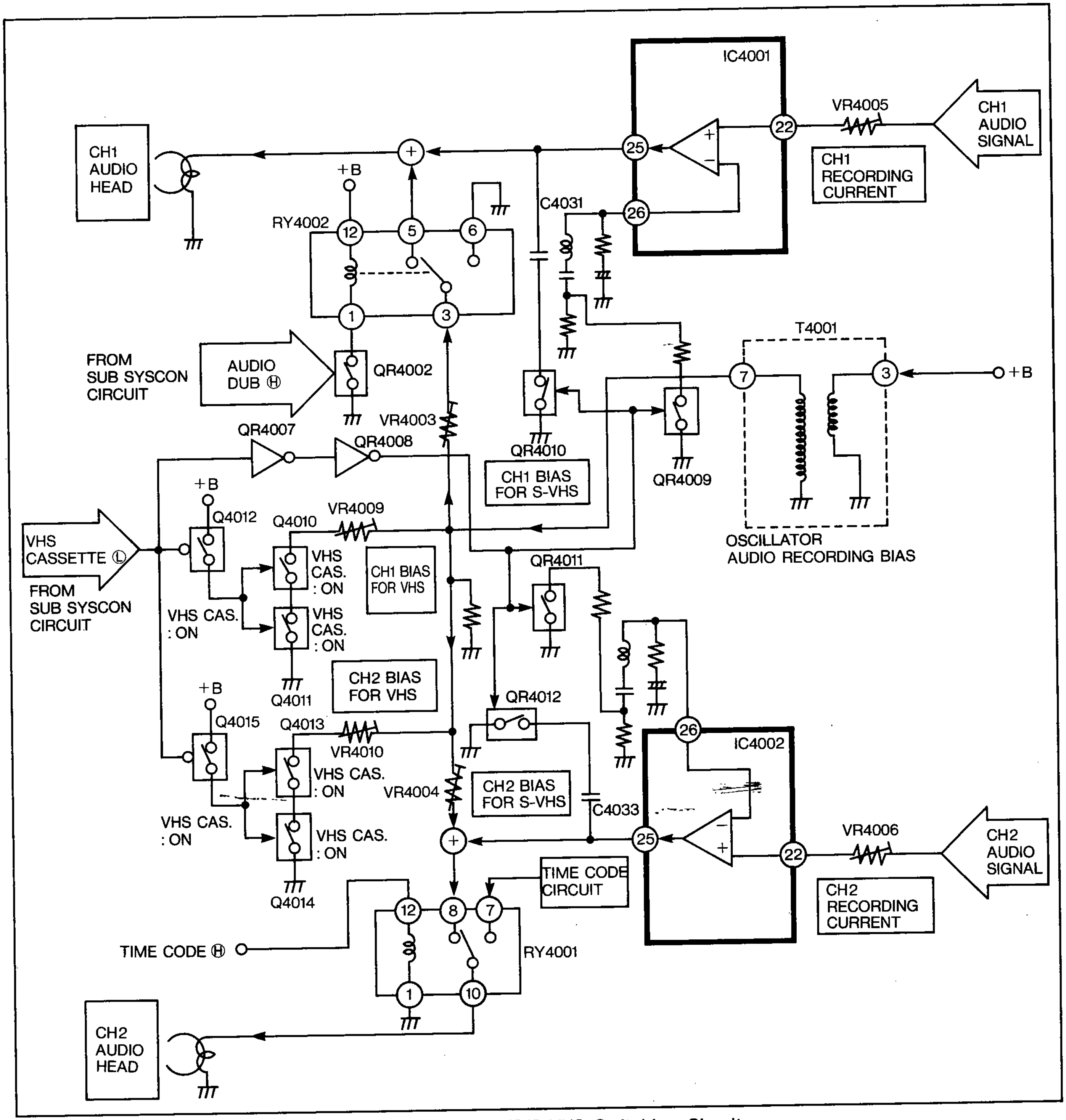


Figure 6–1 VHS/S-VHS Switching Circuit

6–1. VHS/S–VHS SWITCHING CIRCUIT

1) Audio Recording Bias Switching Circuit
As shown in Figure 6–1, the bias switching circuit composed of transistors Q4010 ~ Q4015 are added in AG–7400. When using a VHS cassette, Q4012 and Q4015 are turnd on by a VHS cassette low signal from the subsystem control circuit. Then, they turn on Q4010, Q4011, Q4013, Q4014, and pull down the recording bias through VR4009 and VR4010. Bias current with approximately 190 +– 10 uA is generated and recorded after mixing with an audio signal. When using a S–VHS cassette, transistors Q4010 ~ Q4015 are off. Then the recording bias current becomes approximately 240 +– 10 uA.
And also frequency characteristics of audio signal is switched by transistor QR4009 ~ QR4012.

2) Switching of Recording Current
AG–7400 changes recording current according to the tape, VHS or S–VHS, using QR4014 – QR4016. With VHS tape, the current is apporoximately 300 uA, and with S–VHS tape. apporoximately 400 uA, or about 30% more former.

3) Audio Dubbing Switch
In AG–6400, the Audio Dubbing can be executed only in CH2 because the Audio Dubbing mute low command is output to mute CH1 during Audio Dubbing.
In AG–7400, however, the Audio Dubbing switch is provided on the bottom face of the body as shown in figure 6–3. Both CH1 and CH2 or only CH2 can be selected by using this switch.

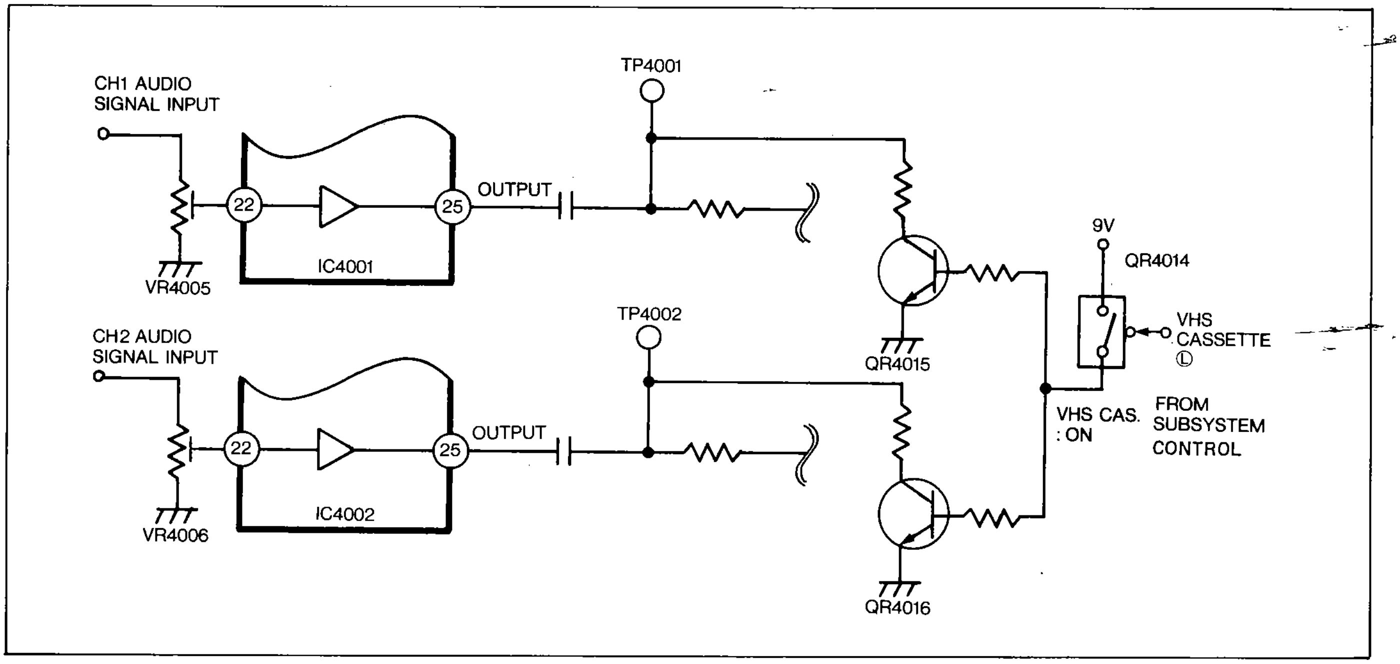


Figure 6–2 Switching of Recording Current

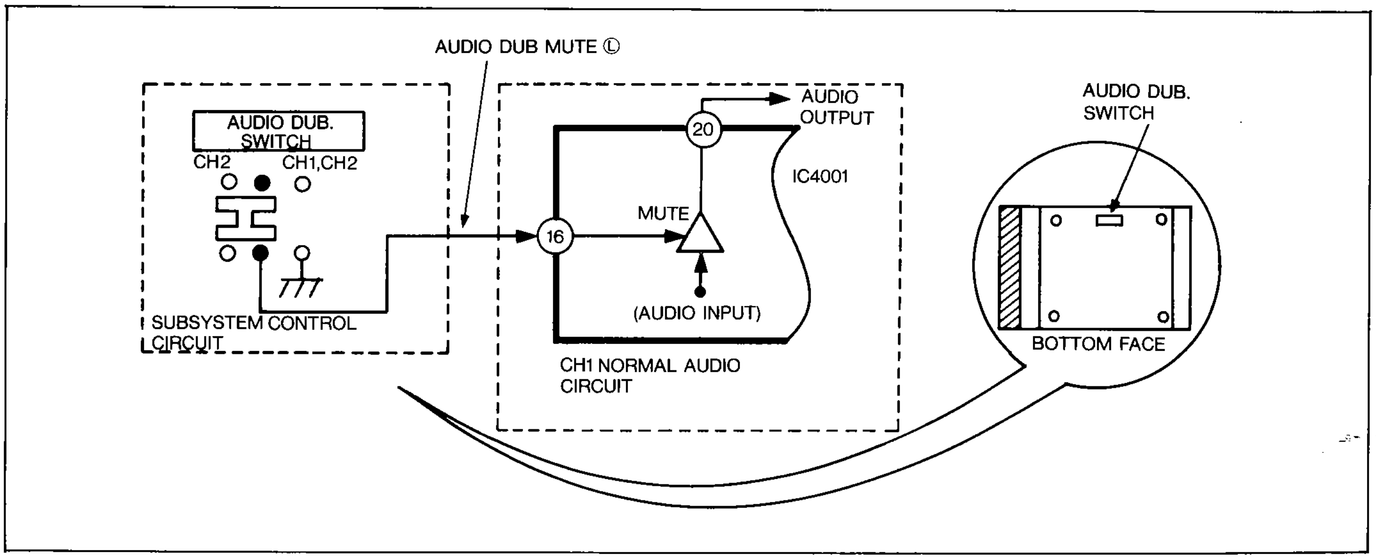


Figure 6–3 Audio Dub Switch

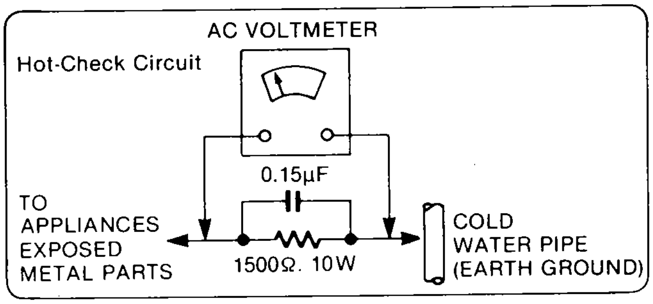
SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1 MΩ and 5.2 MΩ.
   When the exposed metal does not have a return path to the chassis, the reading must be ∞.



AC VOLTMETER
Hot-Check Circuit
0.15μF
TO APPLIANCES EXPOSED METAL PARTS
1500Ω. 10W
COLD WATER PIPE (EARTH GROUND)

Figure 1

LEAKAGE CURRENT HOT CHECK (See Figure 1)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5kΩ, 10 watts resistor, in parallel with a 0.15μF capacitor, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device).

REGULAR MAINTENANCE

The purpose of periodic-maintenance is to preserve the functioning of this machine throughout it's useful life. The user or service dealer should perform these maintenance regularly to ensure that maximum utility is obtained from the machine.

REGULAR MAINTENANCE IS NECESSARY

The VCR is a complicated piece of equipment. It contains many belts, rollers, heads etc., which become worn, and deteriorate as time goes by, causing trouble. Dust and dirt will also impede the proper functioning of the machine. In light of this, it is very important that overall maintenance be done according to the maintenance chart to maintain the functions of the VCR, and to avoid accidental problems. This maintenance should also be performed after any repairs are done on the equipment.

REGULAR MAINTENANCE IS RECOMMENDED

The VCR used for business applications requires particular attention for several reasons. The installation conditions and applications are not always the best. Long use times, or poor environmental conditions may adversely affect the lifespan and performance of the machine. Regular maintenance assures that the purchaser obtains the maximum value for his expenditure. Accordingly, the necessity of regular maintenance should be fully explained at the time of sale, as well as during after-sale repairs.

MAINTENANCE PARTS LOCATION

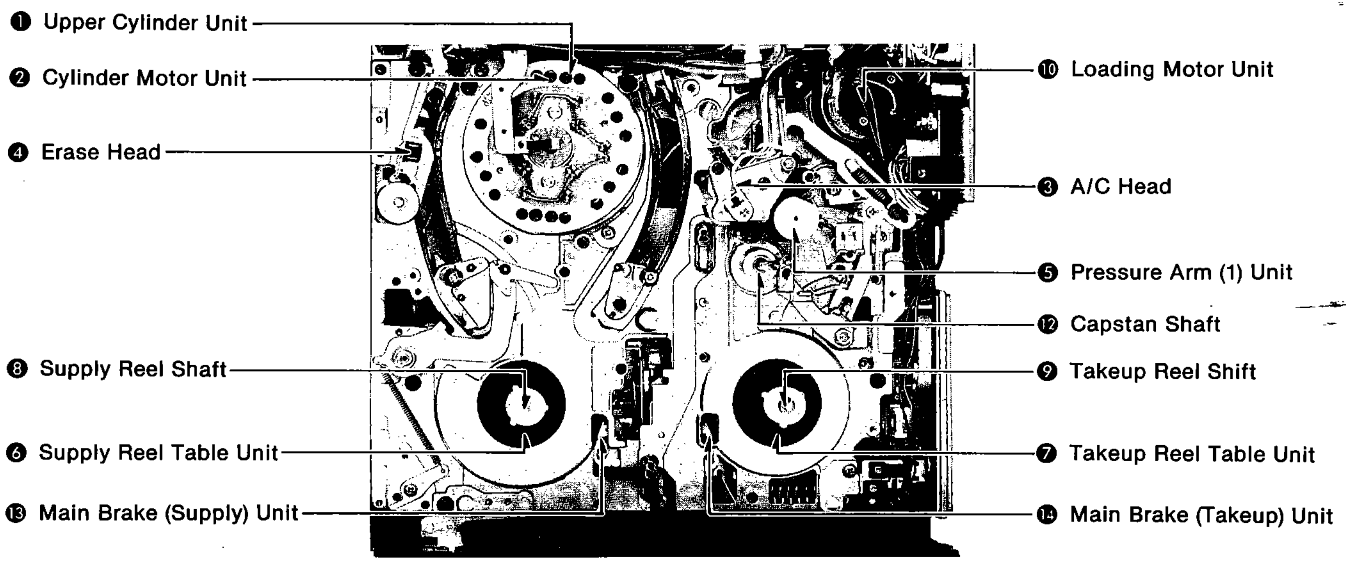


Figure 1 Top View

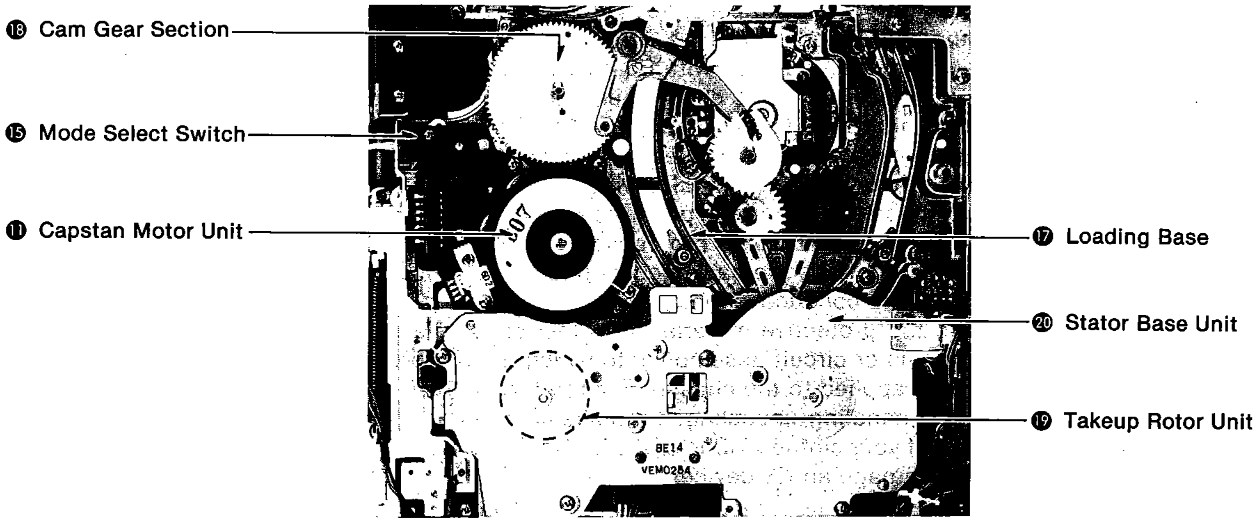


Figure 2 Bottom View

MAINTENANCE CHART

The following perodic maintenance is required to prolong the life of the machine.
Since the parts are keyed to the Inner Parts Location Diagram, when you replace the following parts, refer to the diagram.

	Parts Name	Unit or Part No.	Hour										
			500	1000	1500	2000	2500	3000	3500	4000	4500	5000	Page
❶	Upper Cylinder Unit	VEH0354	●	◎	●	◎	●	◎	●	◎	●	◎	2-8, 2-9, 2-10
❷	Cylinder Motor Unit	VEG0523	●	●	●	●	●	●	●	●	●	●	2-8, 2-9, 2-10
❸	A/C Head	VBR0098	●	●	●	●	●	●	●	◎	●	●	2-14, 2-15, 2-16
❹	Erase Head	VBS0031	●	●	●	●	●	●	●	◎	●	●	——
❺	Pressure Arm (1) Unit	VXL1229	●	●	◎	●	●	◎	●	●	◎	●	——
❻	Supply Reel Table Unit	VXR0122	●	●	●	●	●	●	●	◎	●	●	2-18
❼	Takeup Reel Table Unit	VXR0121	●	●	●	●	●	●	●	◎	●	●	2-18
❽	Supply Reel Shaft	——				▲				▲			2-18
❾	Takeup Reel Shift	——				▲				▲			2-18
❿	Loading Motor Unit	VEM0255				◎				◎			2-20
⓫	Capstan Motor Unit	VEM0206										◎	——
⓬	Capstan Shaft	——	●	●	●	●	●	●	●	●	●	●	——
⓭	Main Brake (Supply) Unit	VXZ0173				◎				◎			2-17
⓮	Main Brake (Takeup) Unit	VXZ0174				◎				◎			2-17
⓯	Mode Select Switch	VSS0099								◎			2-20
⓰	Tape Transport	——	●	●	●	●	●	●	●	●	●	●	2-12, 2-13
⓱	Loading Base	——				■				■			——
⓲	Cam Gear Section	——				■				■			2-19, 2-20, 2-21
⓳	Takeup Rotor Unit	VXP0564								◎			
⓴	Stator Base Unit	VXA2119								◎			

*** NOTE:**

Symbol	Maintenance	Requirement	Remark
●	Cleaning	Freon TF, Ethyl-alcohol or Cleaning Liquid (Purchase locally)	Wipe dirt from the parts using soft cloth impregnated with Freon TF or Ethyl-Alcohol. Note: When cleaning rubber parts, avoid using excessive alcohol since it may accelerate deterioration of these parts. After cleaning with alcohol, wipe the alcohol quickly and thoroughly.
◎	Replacement	——	——
▲	Lubrication	High Quality Spindle Oil (Purchase locally)	Supply one or two drops of oil.
■	Greasing	Molytone Grease (MOR265)	Wipe the old grease and apply new grease.

DISASSEMBLY PROCEDURES

1. DISASSEMBLY FLOWCHART

This flowchart indicates disassembly steps of the cabinet parts and the C.B.A. in order to find the items necessary for servicing.
When reassembling, perform the steps in the reverse order.
The bottom case can be removed individually.

Note:
When removing the cabinet, work with care so as not to break the locking portions.

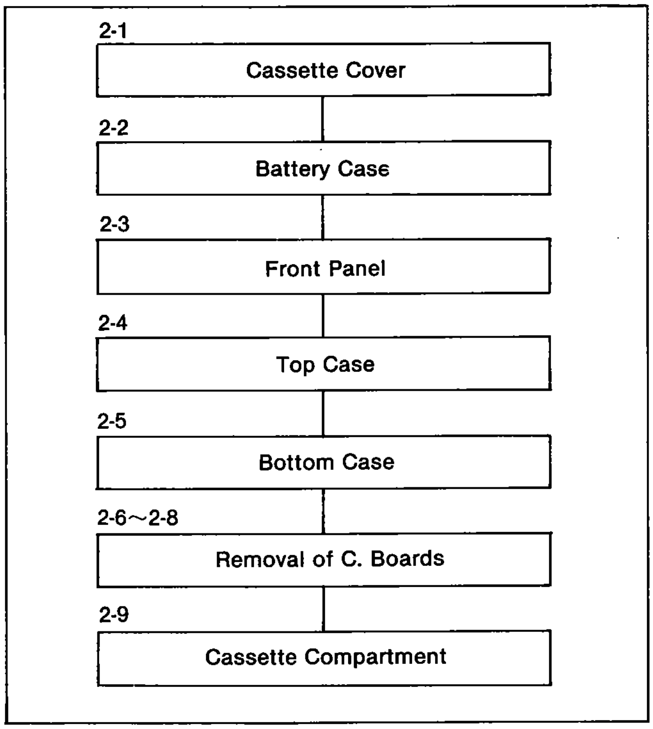


Figure D1

2. DETAILED DISASSEMBLY METHOD

Notes:
1. Place a cloth or any other soft material under the C.B.A. or deck for preventing them being damaged while servicing.
2. When reassembling, ensure the connectors are connected and any electrical components are not damaged.
3. Do not supply power to the deck during disassembly except for removal of the cassette cover.

2–1. REMOVAL OF THE CASSETTE COVER

1. Supply power the deck and turn it on.
2. Then press the EJECT button to raise the cassette up holder.
3. Remove 2 rubber covers and 2 screws(A). Then carefully lift and pivot the front portion to remove.
4. Pay attention so as not to damage the locking portions(B).

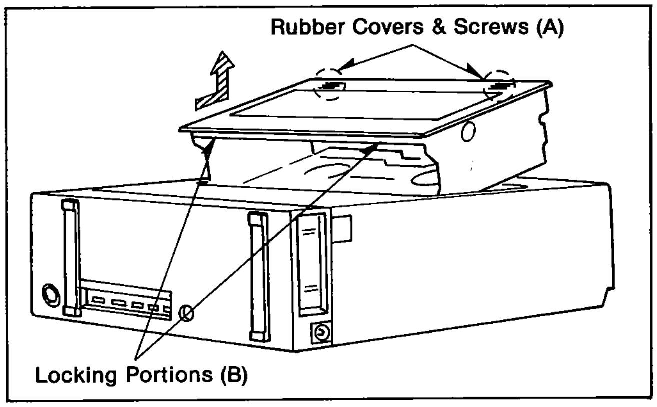


Figure D2

Note:
When reinstalling, first lock the locking portions(B).

2–2. REMOVAL OF BATTERY CASE

1. First confirm that the battery is not inside the battery compartment. If it is, remove the battery.
2. Place the deck upside down so the bottom case faces upward.
3. Remove 2 screws(C), and hold both right and left ends of the battery case. Then carefully lift and pivot the top portion of the battery case.
4. Disconnect the Battery connector and EXT BATT. connector the Main C.B.A.

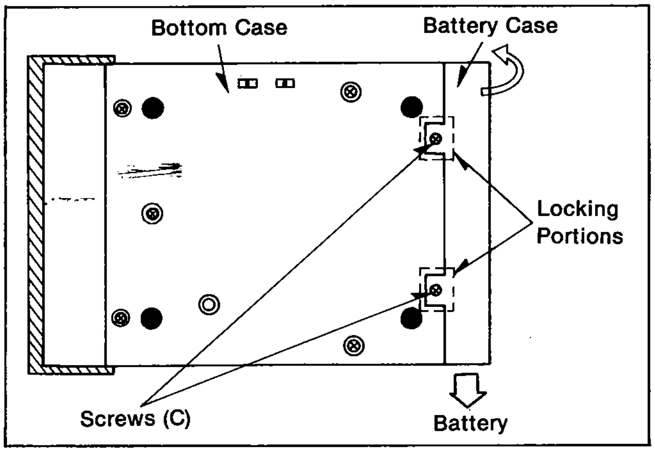


Figure D3

2–3. REMOVAL OF THE FRONT PANEL

1. Place the deck upside down so that bottom case faces upward.
2. Remove the 4 audio level control knobs on the front panel.
3. Remove 2 screws(D), and hold both right and left side of the front panel. Then carefully lift and pivot the bottom portion of the front panel as shown in Figure D4.

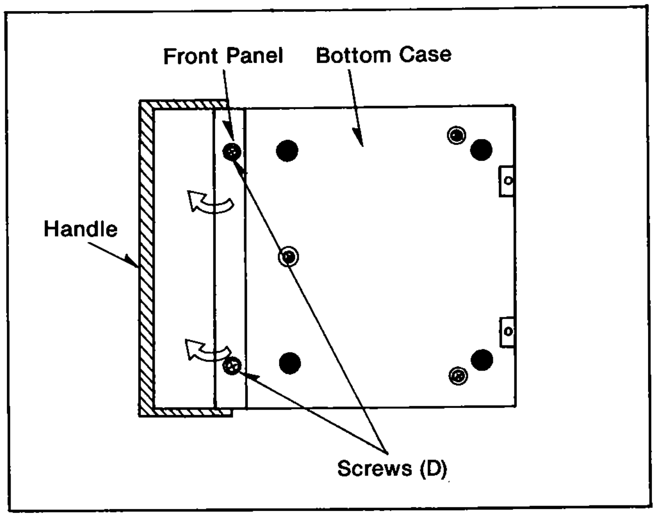


Figure D4

4. Disconnect the Remote Control Connector P6503 from the Front C.B.A.

2–4. REMOVAL OF THE TOP CASE

1. Remove the 2 screws(E) on the rear part of the top case. Then remove the top case by lifting the rear portion and pay attention. (Figure D5)

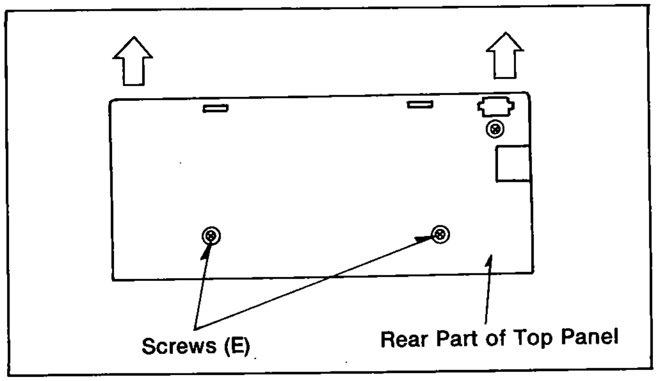


Figure D5

2–5. REMOVAL OF THE BOTTOM CASE

1. Place the deck upside down so the bottom case upward.
2. Remove 3 screws(F). Then remove the bottom case.

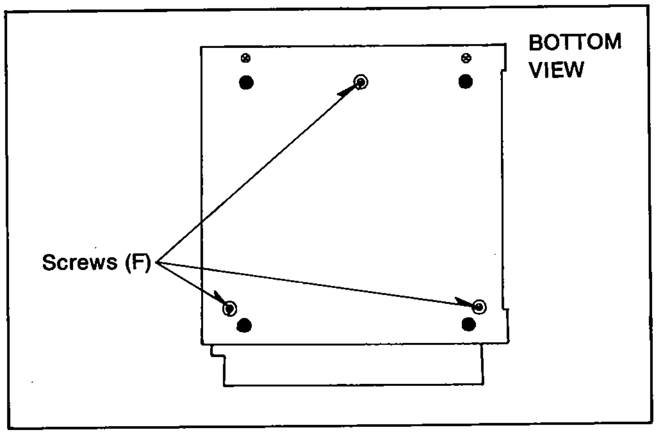


Figure D6

2–6. REMOVAL OF THE FRONT C.B.A.

1. Remove 2 screws(G) and unlock 3 points of C.B.A. locking tab(H). Then carefully pivot the top portion of the C.B.A.

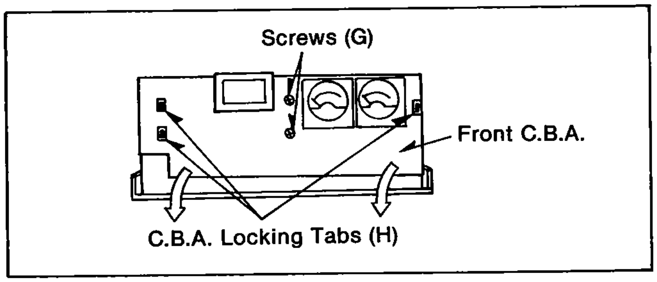


Figure D7

2–7. REMOVAL OF THE VIDEO(1) C.B.A., VIDEO(2) C.B.A., HEAD AMP C.B.A. AND MAIN C.B.A.

1. Remove 2 screws(I) on the Video(2) C.B.A.

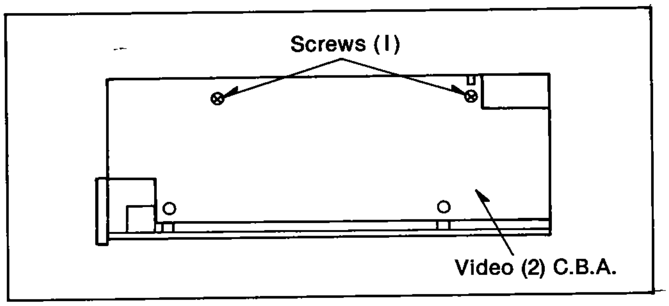


Figure D8

2. Remove 2 screws(J) on the Head Amp C.B.A.

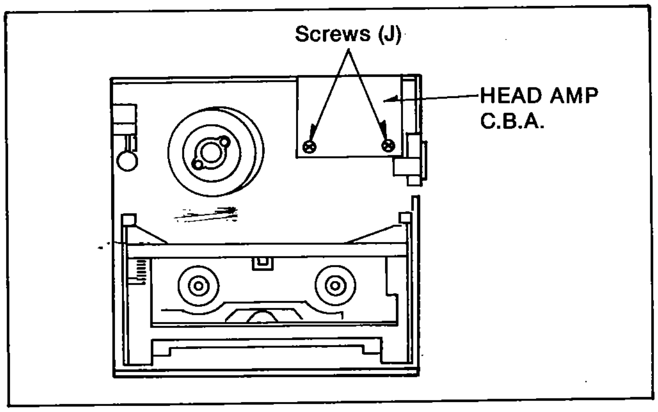


Figure D9

3. Remove 2 screw spacers(K) on the Video(1) C.B.A.

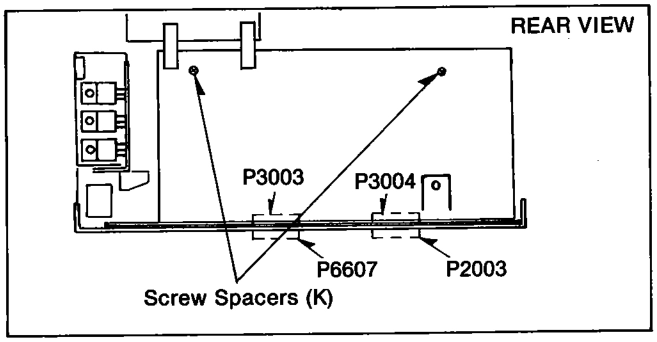


Figure D10

4. Remove 4 screws(L) on the Main C.B.A.

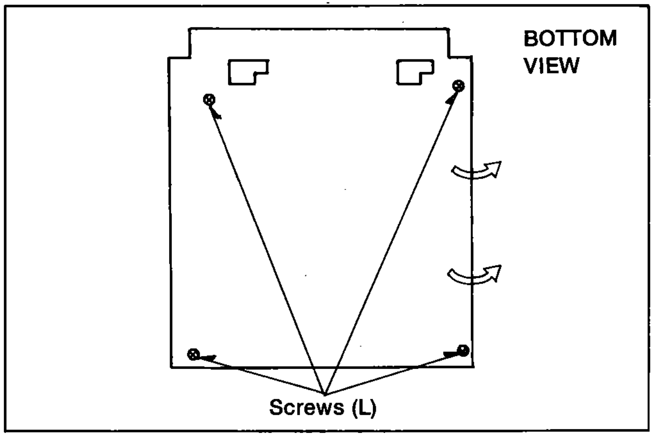


Figure D11

5. Disconnect connector P6604 on the Main C.B.A. and earth cable then carefully lift the C.B.A.s to remove as shown in Figure D12.

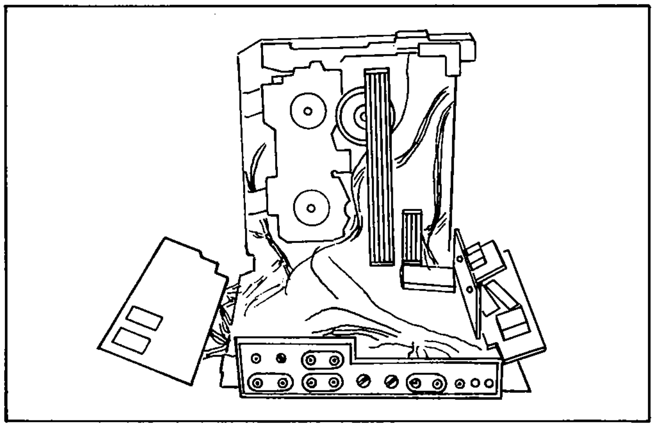


Figure D12

2–8. REMOVAL OF THE A.V.R. & REEL SERVO C.B.A.

1. Remove the 5 screws(M). Then carefully lift the C.B.A.

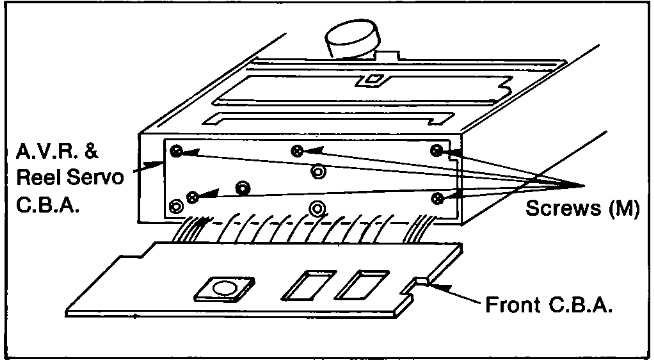


Figure D13

2–9. REMOVAL OF THE CASSETTE COMPARTMENT

Note:
This procedures should be perform after the removal of the Main C.B.A.

1. Remove 2 screws(N) and remove 6 screws(O) on the chassis.
2. Eject the cassette compartment.
3. Remove the Supply Photo TR Unit, removing a screw(P).
4. Remove the Takeup Photo TR Unit, removing a screw(Q).
5. Remove connector P654 from Audio Erase Head C.B.

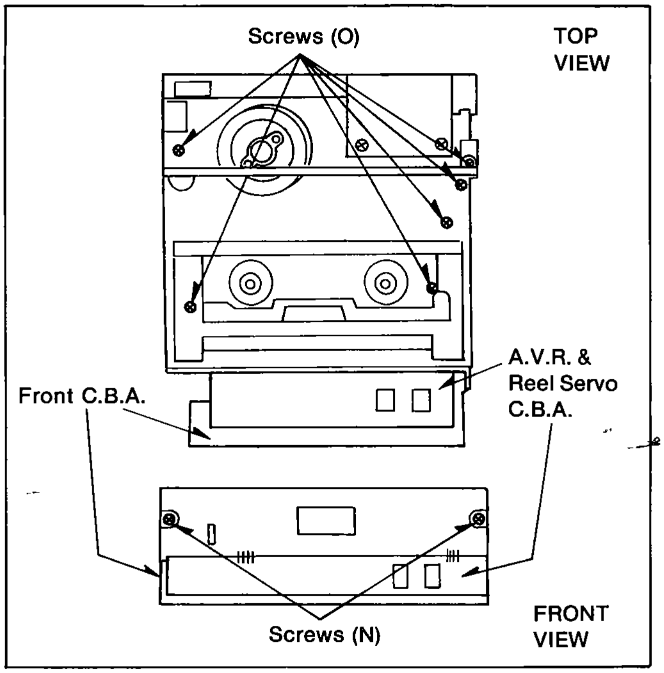


Figure D14

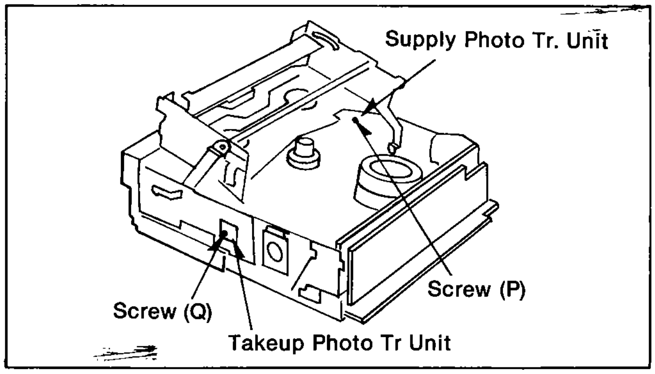


Figure D15

Note:
When reinstalling, first insert the back portion of the cassette compartment.

6. If you want to eject the cassette compartment having a cassette tape without the electrical power, push (R) portion of the cassette lock lever, inside of Mechanical Chassis with small screwdriver.

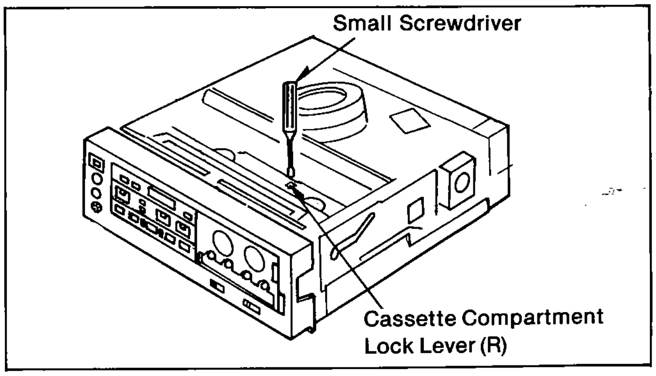
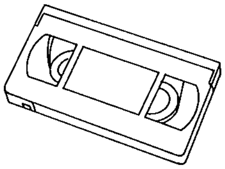
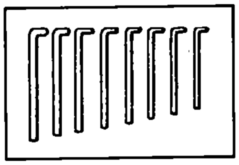
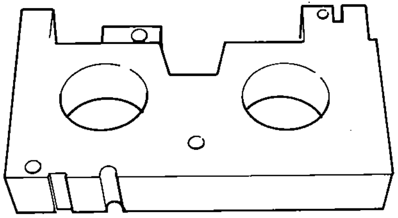
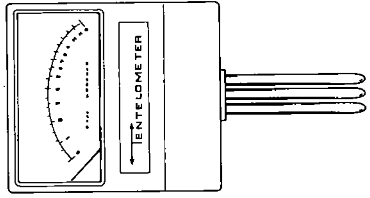
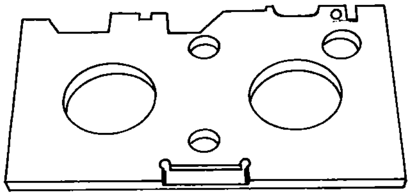
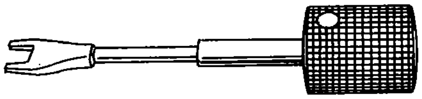
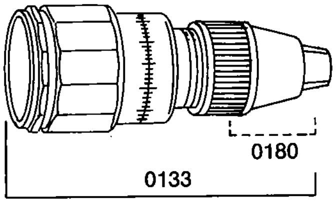
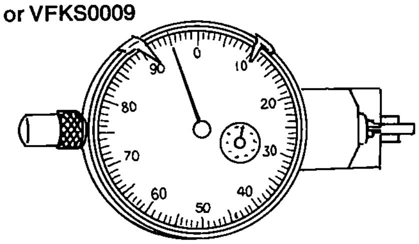
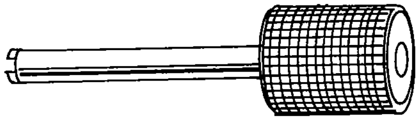
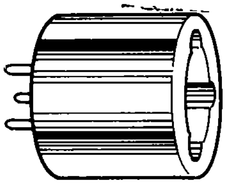
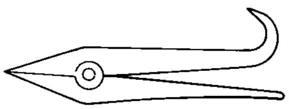
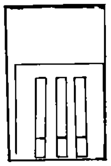
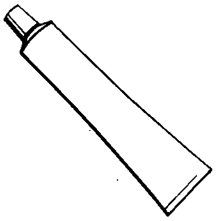
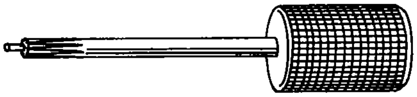
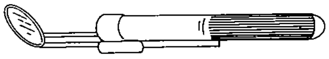


Figure D16

MECHANICAL ADJUSTMENT PROCEDURES

The regular maintenance is important to maintain the initial specification of the deck and to prevent tape damage.
The specified servicing fixture must be used to conduct adjustment requiring a servicing fixture.
The following fixtures and tools are required to conduct complete Mechanincal Adjustments.

1. SERVICING FIXTURES & TOOLS

VFM8080HMFPH VHS Alignment Tape  Refer to Technical Information order No. VRD-TS-409-1	VFK0326 Hex. Wrench (Set) (0.7, 0.9, 1.2, 1.5, 1.6, 2, 2.4, 3mm) 	VFK0188 Cassette Holder Fixture 
VFK0132 Back Tension Meter (Tentelometer, Made in U.S.A.)  	VFK0191 or VFKS0010 Post Adjustment Plate 	VFK0328 or VFKS0003 H-Position Adj. Fixture 
VFK0133 (Dial Torque Gauge) VFK0180 (Plastic Clamper Only)  	VFK0190 or VFKS0009 Reel Table Height Fixture  	VFK0329 Post Adjustment Screwdriver 
VFK0134 Adaptor for VFK0133 	VFK0335 Retaining Ring Remover (3mm/4mm) 	VFK27 Head Cleaning Stick  MOR265 Morlytone Grease 
VFK0330 Fine Adjustment Screwdriver (3mmφ) 	VFK0343 Check Light 	Height Quality Machine Oil <Purchase Locally> (Reel Shaft. Capstan Shaft etc.) Cleaning Liquid (Freon TF., Alchol) <Purchase Locally> (Tape Transport Rubber Parts etc.)

2. CYLINDER MAINTENANCE PROCEDURES

2-1. REMOVING THE UPPER CYLINDER UNIT

* Note: Do not touch video heads during servicing.

1. Remove the screw (A) and the Grounding Spring (Figure M1).

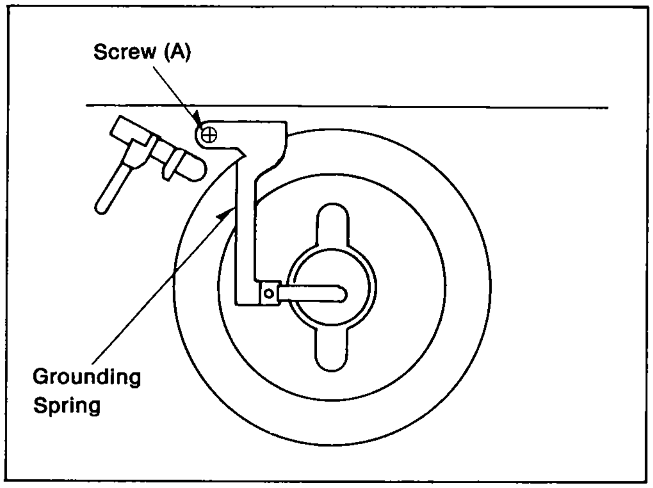
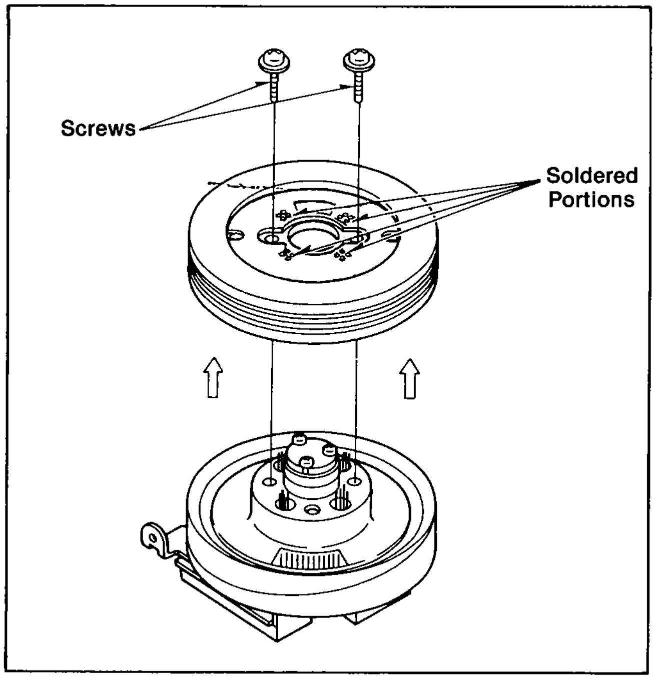


Figure M1 Removing the DD Cylinder Unit

2. First remove two screws as shown in Figure M2. Then unsolder 14 (Figure M2) of the soldered portions indicated by arrows on the Upper Cylinder, and finally remove the Upper Cylinder.

* Note: Soldered portion can be easily removed by using solder sucking wire, etc.



Fiture M2 Removing the Upper Cylinder Unit

* CAUTION: Do not loosen the 3 small screws on the top of the cylinder as shown in Figure M3. If these 3 small screws are losened, cylinder motor is broken and it can not repaired.

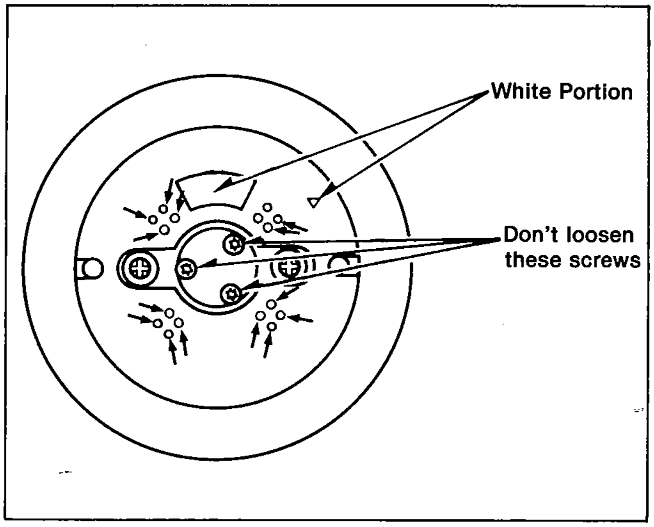


Figure M3 Solder Points of Upper Cylinder

2-2. REINSTALLING THE UPPER CYLINDER

The Upper Cylinder unit can be reinstalled by reversing the removal procedure.
However, when Upper Cylinder is installed, be extremelycarefully so that white portion of P.C. board of Upper Cylinder correctly matches the white portion of bottom cylinder as shown in Figure M4.

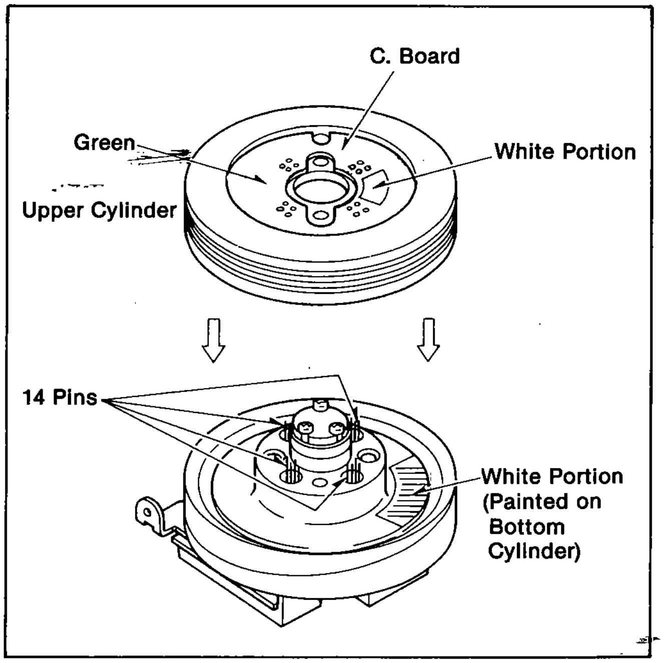


Figure M4 Reinstalling the Upper Cylinder

* Note: If the Upper Cylinder Unit is reversely installed, no color will appear when playing back pre–recorded tapes.

2-3. PROCEDURES FOR CLEANING OF CYLINDER UNIT

1. Position the video head to permit access for cleaning and hold the upper cylinder to keep it from turning while cleaning.
2. Gently rub the video head in direction of tape travel with Head Cleaning Stick moistened with Freon TF.
3. Repeat for the other video heads. (Figure M5).

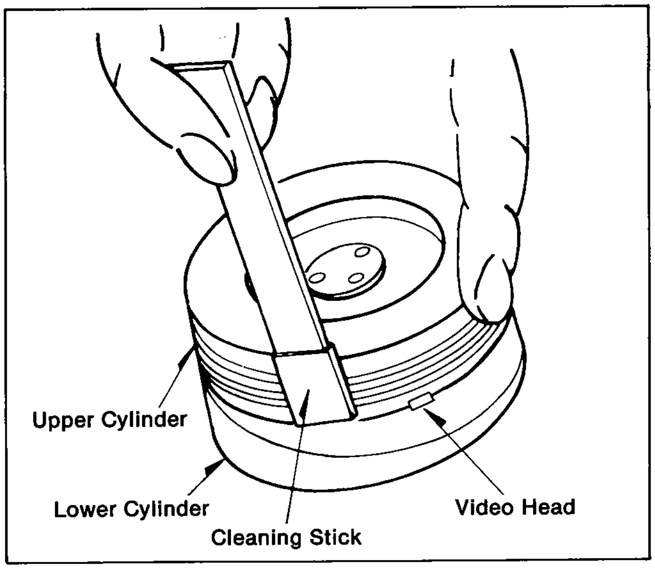


Figure M5 Head Cleaning

* Notes:
1. Do not rub vertically.
2. Do not apply any pressure to head. If contaminant is not easily removed, continued gentle wiping will usually remove the substance.
3. Do not rotate the Upper Cylinder Unit clockwise when cleaning it.

2-4. REPLACEMENT OF DD CYLINDER UNIT

* Note: Work with extreme care when removing or replacing the DD cylinder unit. Do not touch video heads during servicing.

1. Remove the screw (A) and the Grounding Spring. (Figure M6)

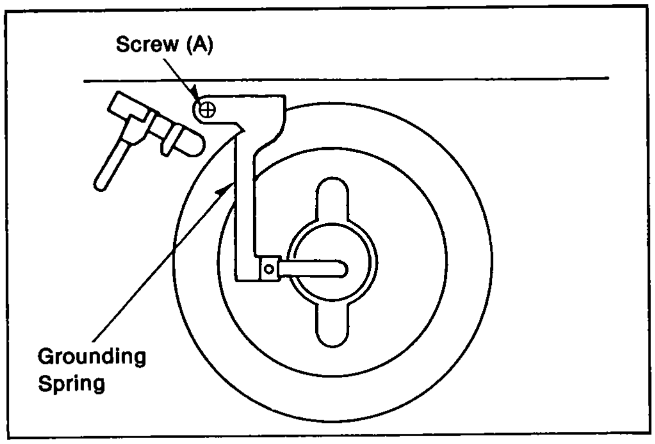


Figure M6 Replacement of DD Cylinder Unit (1)

2. Disconnect 2 connectors under the cylinder section.
3. Remove the 3 screws and DD cylinder unit. (Figure M7)

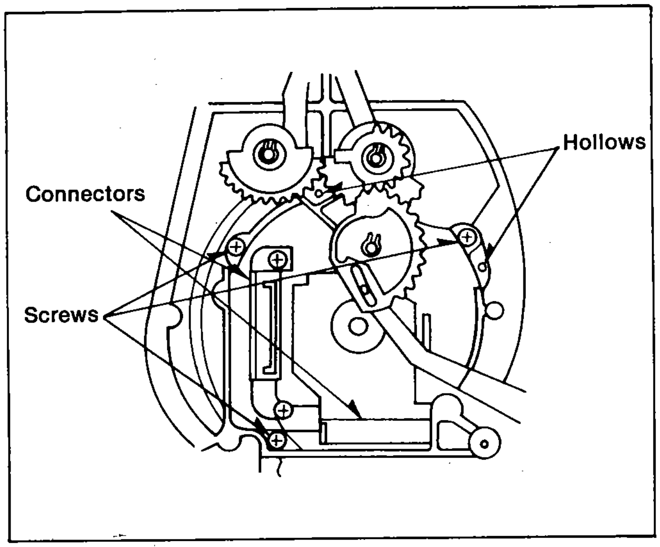


Figure M7 Replacement of DD Cylinder Unit (2)

* Note: Since there is very little clearance between DD Cylinder Unit and chassis, remove the DD Cylinder Unit gently and carefully.

4. Reinstall the new Cylinder Unit, tighten the 3 screws. Then connect 2 connectors.

* Notes: Reinstall the new DD Cylinder Unit, so that the projections (A) on the chassis agree with the hollows (B) under the cylinder. (Figure M8)

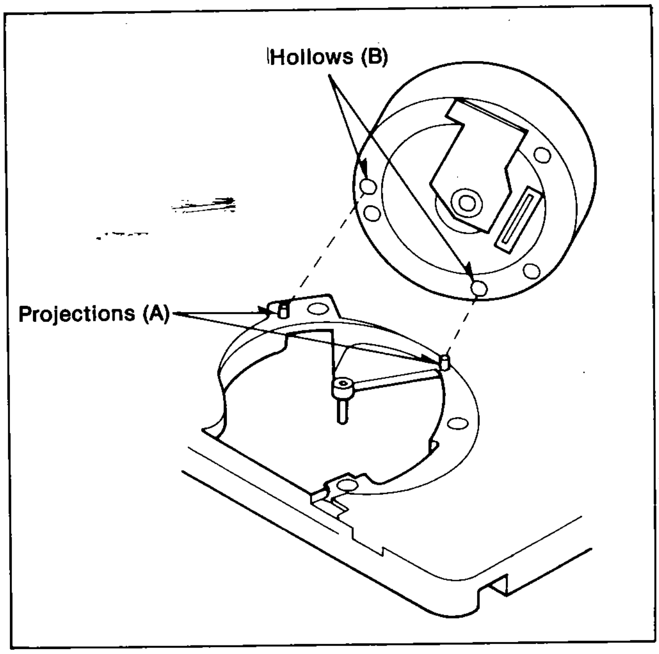


Figure M8 Replacement of DD Cylinder Unit (3)

* Notes:

1. Gently rub the video head in direction of tape travel with Head Cleaning Stick moistened with Freon TF.
2. After replacement, confirm performance. If any further maintenance is required, perform "TAPE INTERCHANGEABILITY ADJUSTMENT"
3. After replacing the new DD cylinder unit, check to see if the Grounding Spring is correctly set in a position within 2mm to the right from the center of the cylinder shaft as shown in Figure M9.
4. Never install the Grounding Spring to any position to left from the center of the cylinder shaft, but always within a maximum of 2mm to the right of the center of this shaft.

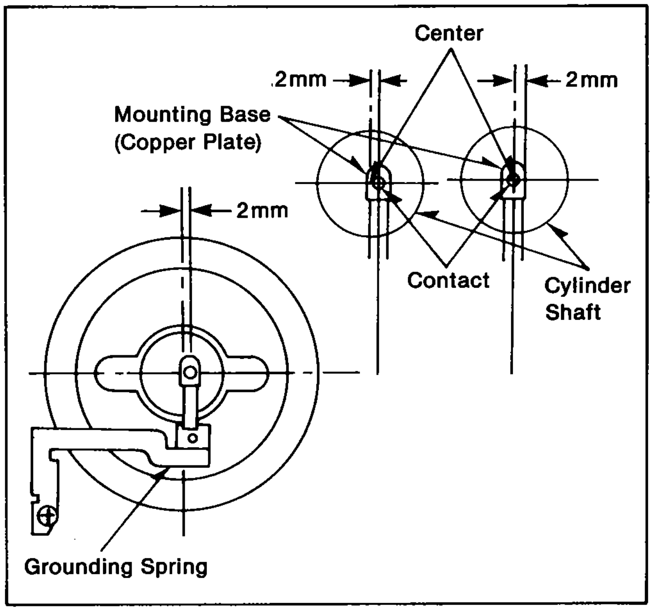


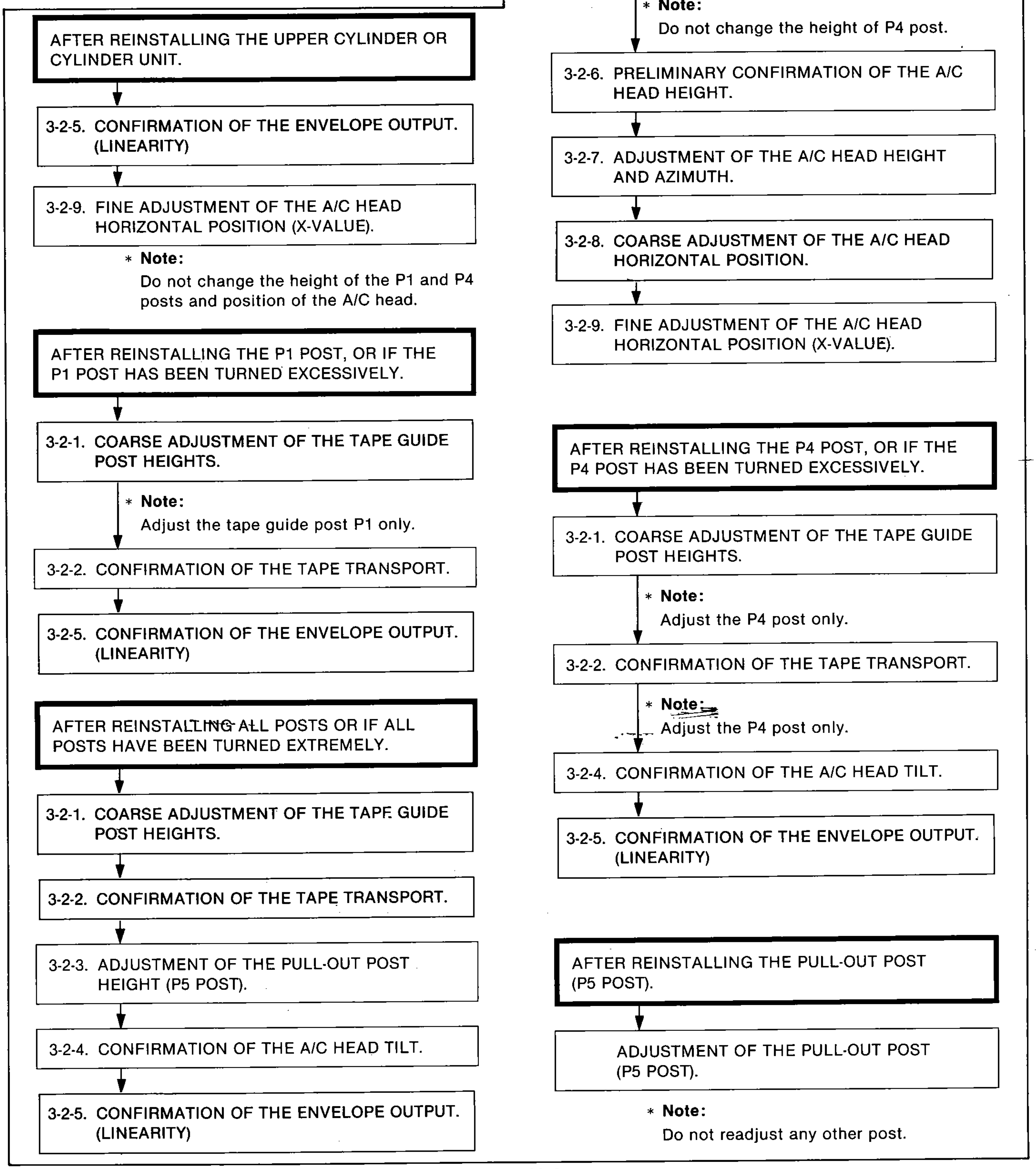
Figure M9 Confirmation of GND Spring Installation Position

5. Do not scratch the Mounting Base with screws on the DD cylinder unit.

3. TAPE INTERCHANGEABILITY ADJUSTMENT PROCEDURES

3-1. ADJUSTMENT FLOWCHART

This flow chart describes the order of steps for adjusting the tape guide posts and A/C head in order to gain access to the items needing servicing. (Figures M10 and M11).



AFTER REINSTALLING THE UPPER CYLINDER OR CYLINDER UNIT.

- 3-2-5. CONFIRMATION OF THE ENVELOPE OUTPUT. (LINEARITY)
- 3-2-9. FINE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION (X-VALUE).

* **Note:**
Do not change the height of the P1 and P4 posts and position of the A/C head.

AFTER REINSTALLING THE P1 POST, OR IF THE P1 POST HAS BEEN TURNED EXCESSIVELY.

- 3-2-1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS.

* **Note:**
Adjust the tape guide post P1 only.

- 3-2-2. CONFIRMATION OF THE TAPE TRANSPORT.
- 3-2-5. CONFIRMATION OF THE ENVELOPE OUTPUT. (LINEARITY)

AFTER REINSTALLING ALL POSTS OR IF ALL POSTS HAVE BEEN TURNED EXTREMELY.

- 3-2-1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS.
- 3-2-2. CONFIRMATION OF THE TAPE TRANSPORT.
- 3-2-3. ADJUSTMENT OF THE PULL-OUT POST HEIGHT (P5 POST).
- 3-2-4. CONFIRMATION OF THE A/C HEAD TILT.
- 3-2-5. CONFIRMATION OF THE ENVELOPE OUTPUT. (LINEARITY)

AFTER REINSTALLING THE A/C HEAD.

- 3-2-4. CONFIRMATION OF THE A/C HEAD TILT.

* **Note:**
Do not change the height of P4 post.

- 3-2-6. PRELIMINARY CONFIRMATION OF THE A/C HEAD HEIGHT.
- 3-2-7. ADJUSTMENT OF THE A/C HEAD HEIGHT AND AZIMUTH.
- 3-2-8. COARSE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION.
- 3-2-9. FINE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION (X-VALUE).

AFTER REINSTALLING THE P4 POST, OR IF THE P4 POST HAS BEEN TURNED EXCESSIVELY.

- 3-2-1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS.

* **Note:**
Adjust the P4 post only.

- 3-2-2. CONFIRMATION OF THE TAPE TRANSPORT.

* **Note:**
Adjust the P4 post only.

- 3-2-4. CONFIRMATION OF THE A/C HEAD TILT.
- 3-2-5. CONFIRMATION OF THE ENVELOPE OUTPUT. (LINEARITY)

AFTER REINSTALLING THE PULL-OUT POST (P5 POST).

- ADJUSTMENT OF THE PULL-OUT POST (P5 POST).

* **Note:**
Do not readjust any other post.

Figure M10

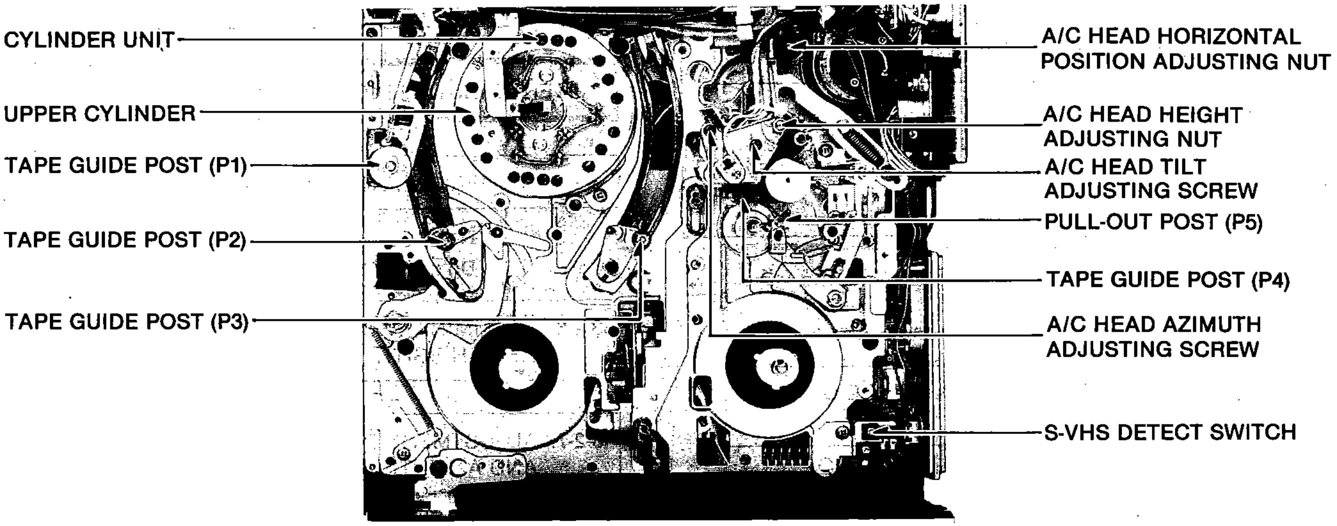


Figure M11

3-2. ADJUSTMENT PROCEDURES

3–2 –1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS (P1,P2,P3 AND P4)

* Notes: The tape guide post P1,P2 and pull–out post have been precisely adjusted at the factory. Therefore, normally do not change the height. The following adjustment is required only when replacing the posts.

* Equipment Required:
Post Adjustment Plate................VFKS0010
Reel Table Height Fixture............VFKS0009
Nut Driver (Purchase locally)
Post Adjustment Screwdriver..........VFK0329

1. Remove the Top Panel and the Top Loading Unit.
2. Place the Post Adjustment Plate over the reel tables. (Figure M12). Confirm that the Post Adjustment Plate is firmly seated.

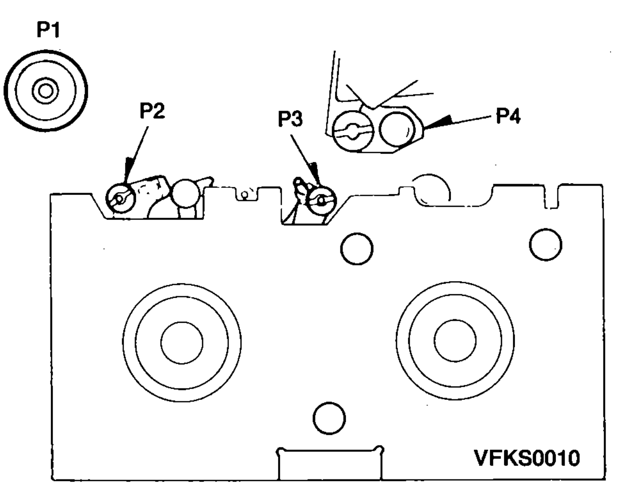


Figure M12

3. Lower the tape guide posts so that the lower tape guide on each post is below the top surface of the adjustment plate.
   Use the Post Adjustment screwdriver to lower posts P2 and P3, and the Nut Driver to lower posts P1 and P4.
4. Place the Reel Table Height Fixture on the Post Adjustment Plate and lower the scraper so that it touches the plate.

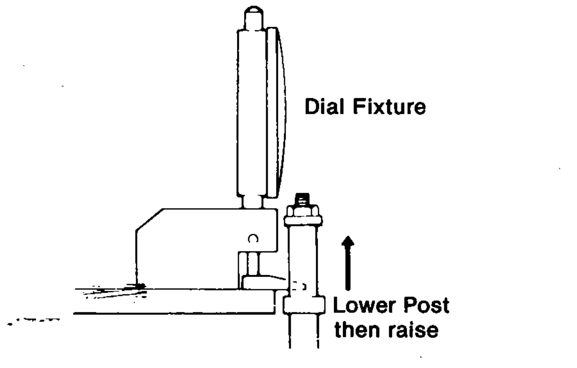


Figure M13

5. Place the side of the scraper aginst the each post as shown in Figure M13, set the fixture to zero, then slowly raise the post until the lower tape guide just touches the bottom of the scraper. Use the fixture to determine the exact point at which the lower tape guide touches the scraper. (Figure M14)

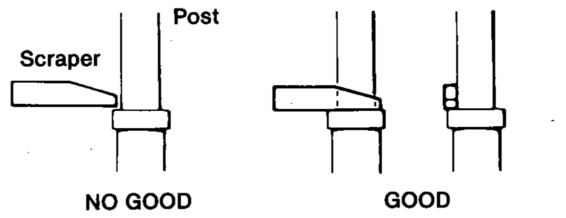


Figure M14

3–2–2. CONFIRMATION OF THE TAPE TRANSPORT (TAPE GUIDE POSTS)

* Notes:
1. The tape guide posts have been precisely adjusted at the factory. Therefore, normally do not change the height of P1 and P4 posts. The following adjustment is required only when replacing the posts.
2. If curling is apparent proceed to the P4 post, wipe dirt from the pressure roller and capstan shaft using a soft cloth impregnated with Freon TF or cleaning liquid.
3. The adjustment of the post height is required only the one which has been replaced.

* Equipment Required:
Post Adjustment Screwdriver..........VFK0329
Nut Driver (Purchase locally)

1. To prevent the alignment tape from being damaged, use a normal cassette tape for this procedure.
Playback the normal cassette tape and confirm that the tape travels without any curling at the edges of all the posts. (Figures M15,M16 and M17)

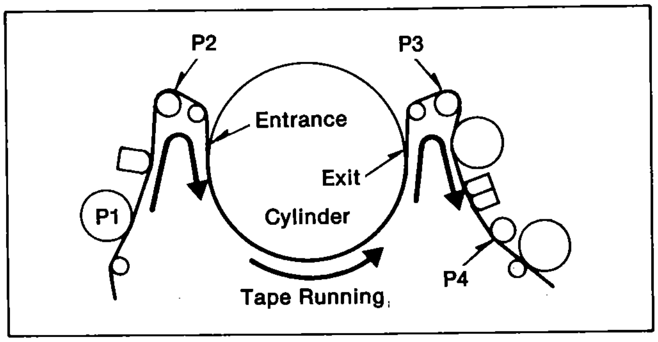


Figure M15 Tape Transport Posts

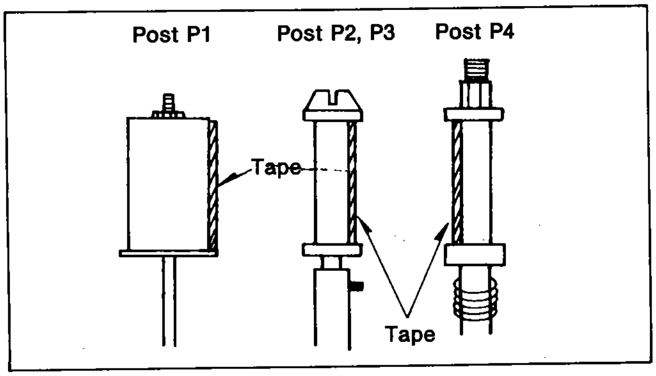


Figure M16 P1, P2, P3, P4 Posts

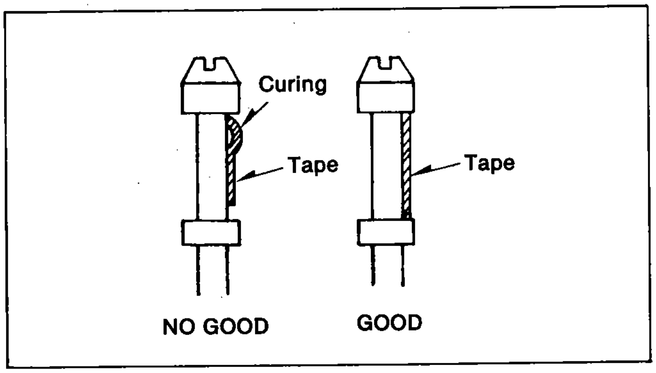


Figure M17 P1, P2 Posts

2. If curling is apparent, adjust the height of posts by turning the top of post with the post adjustment screwdriver (Posts P2 and P3) or the nut driver (Posts P1 and P4). (Figures M16 and M17)
3. After adjusting the P4 post, adjustment of the pull–out post (P5) is required.
(Refer to "ADJUSTMENT OF THE PULL–OUT POST HEIGHT".)
4. If the tape curling cannot be acomplished by adjusting the tape guide posts, then adjustment of the A/C Head tilt may be needed.

3–2–3. ADJUSTMENT OF THE PULL–OUT POST (P5 POST) HEIGHT

* Note s:
1. This adjustment should be performed only after adjusting tape guide post P4 as the height of the pull–out post is based on the height of post P4.
2. This adjustment should be performed with the unit in the loading–completion mode.
3. Before this adjustment, simulate the cassette down condition without cassette tape.
   (1) Remove the cassette compartment, and cover the take up and supply photo transistors with black tape.
   Press the Lock Lever (B) until the cassette down condition as shown Figure M18.

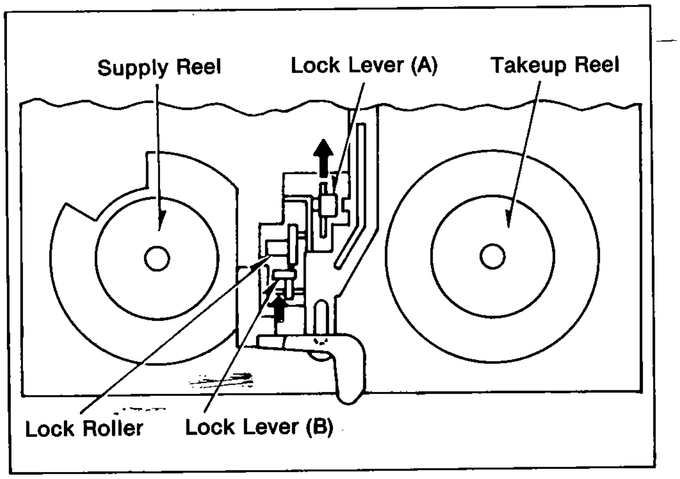


Figure M18 Cassette Down Condition Without Cassette Tape

   (2) After this adjustment is finished, return the Lock Lever (B) to Eject position as described below.
   (3) How to return Eject position.
   Pull up the Lock Roller, while Pressing the Lock Lever (A) as direction indicated by the arrow shown in Figure M18.

* Tools and Equipment Required:
Post Adjustment Plate..............VFK0191
Reel Table Height Fixture..........VFK0190
Nut Driver (Purchase locally)

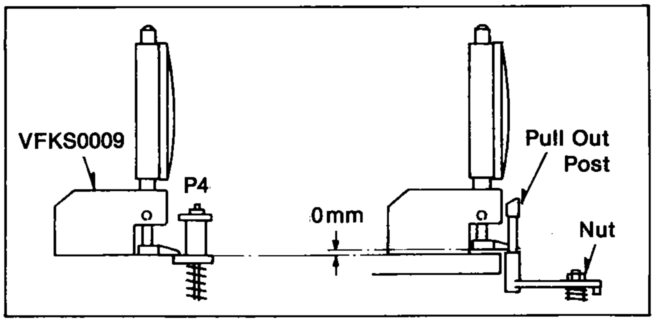


Figure M19 P5 Post

1. Turn the power switch on.
2. Insert a cassette tape to the cassette compartment, then press the play button. This simulates the loading completion mode.
3. Unplug the unit from the power source.
4. Place the Post Adjustment plate over the reel tables.
5. Place the Reel Table Height Fixture on the tape guide post P4,lower the scraper so that it touches the lower edges of P4, then set the gauge to zero ("0"). (Figure M19)
6. Slightly lower the pull-out post by turning the nut on the post clockwise with the nut driver, and set the side of the scraper against the post as shown in Figure M14.
7. Slowly turn the nut on the post counterclockwise until the fixture reads 0mm. (Figure M19)
8. Confirm there is no tape curling at P4 post during reverse mode.
If tape curling occurs, back to step 5.

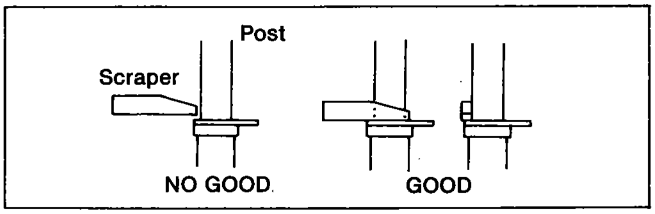


Figure M20 Post Adjustment

3-2-4. CONFIRMATION OF THE A/C HEAD TILT

* Note: This procedure should be performed after replacing the A/C Head and pressure roller, and adjusting the height of the tape guide post (P4).

* Tools and Equipment Required:
Screw Driver (purchase locally)

1. Playback the begnning portion of NV-T160 cassette tape and confirm that the tape runs between lower and upper limiters of the P4 post. If there is waving or frilling in the lower edge or top edge of the tape, correct the tilt of the A/C head by turning the screw(C) located behind the A/C Head. (Figure M21)

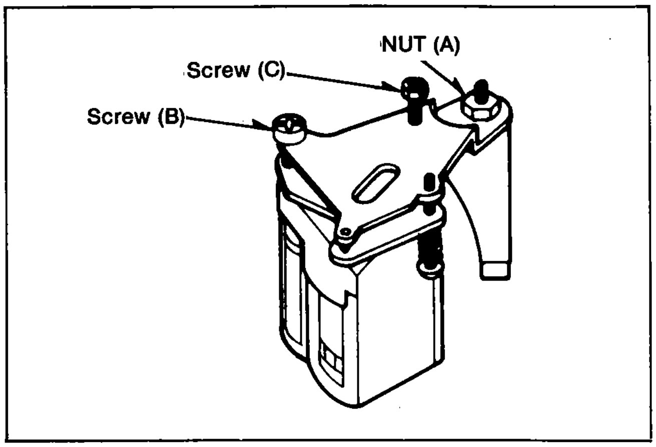


Figure M21 A/C Head Tilt

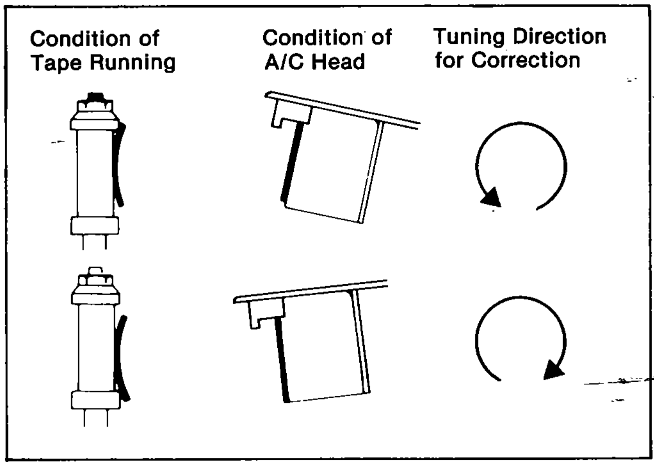


Figure M22 Confirmation of Tilt of A/C Head

2. If correction of the tape curling cannot be accomplished by adjusting the A/C Head tilt, then readjustment of the height of the tape guide post (P4) may be needed.

* Notes:
1. The tape guide post (P4) has been precisely adjusted at the factory. Therefore, normally the tape guide post (P4) readjustment is not required to eliminate the tape curling.
2. After adjusting the A/C Head tilt, the A/C Head height adjustment is required.

3-2-5. CONFIRMATION OF THE ENVELOPE OUTPT (LINEARITY)

* Note: Before playing back the alignment tape, playback a normal cassette tape and confirm correct transport(Refer to "CONFIRMATION OF THE TAPE TRANSPORT").

* Tools and Equipment Required:
Hex Wrench Set.......................VFK0326
Post Adjustment Screwdriver...........VFK0329
Alignment Tape..................VFM8080HMFPH

1. Connect the scope to TP4508 on the HD AUDIO section in Main C.B.A. and TP4509 on the same C.B.A. to Ext-Trigger the scope.
2. Playback the 1st portion (HD AUDIO) of the alignment tape VFM8080HMFPH.
3. Turn the Tracking Control VR and adjust for maximum HD AUDIO FM envelope.

4. If the HD AUDIO FM envelope appears like example "A" or "B" in Figure M23, then adjustment of the tape guide post (P2: Entrance) is necessary.
5. Adjust the tape guide post (P2) with the post adjustment screwdriver so that the HD AUDIO FM envelope waveform at the entrance portion becomes flat as shown "C" in Figure M23.

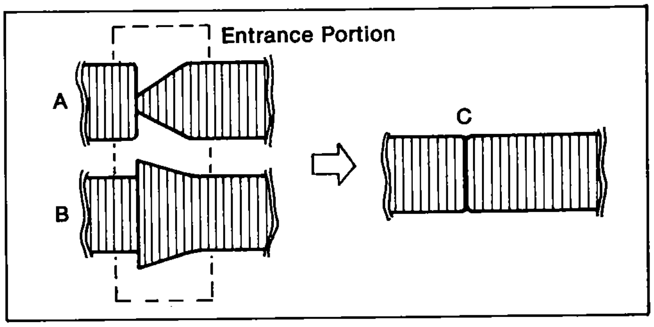


Figure M23 VIDEO FM Envelope (1)

6. If the HD AUDIO FM envelope appears like example "D" or "E" in Figure M24, then adjustment of the tape guide post (P3: Exit) is necessary.
7. Adjust the tape guide post (P3) in the same manner as the P2 post so that the exit portion becomes flat as shown in "F" in Figure M24.

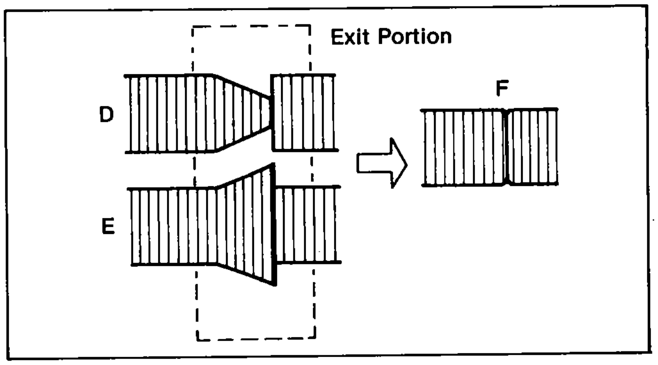


Figure M24 VIDEO FM Envelope (2)

8. Turn the Tracking VR from end to end.
   The variation of ~~HD-~~AUDIO FM envelope should be nealy parallel as shown in Figure M25.
9. Turn the Tracking VR and adjust for maximum HD AUDIO FM envelope.
   If the HD AUDIO FM envelope does not meet these specs,
   V1/V = more than 0.7
   V2/V = more than 0.8
   then repeat stsps 1–8 again. (Figure M27)

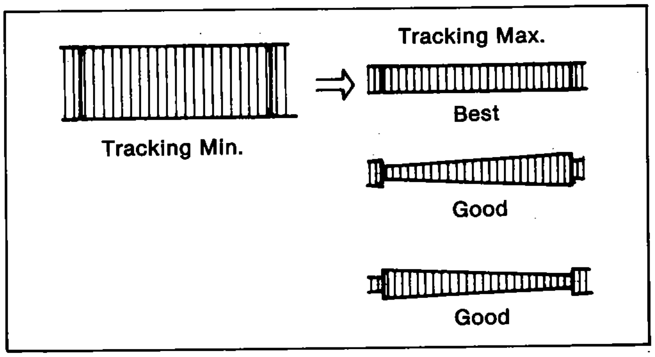


Figure M25 FM Envelope (3)

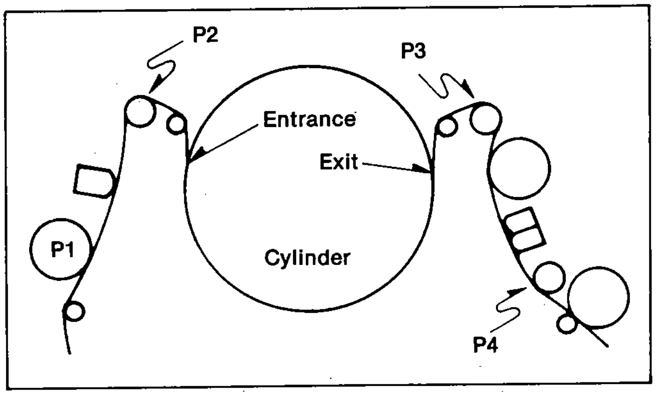


Figure M26 Loading Posts

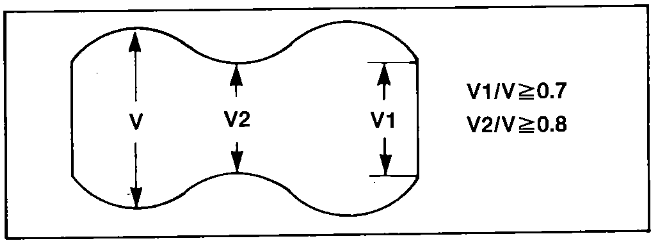


Figure M27 Spec. of Envelope

10. Turn the Tracking VR from end to end again and then back to the detent (Fix) position.
    At the detent position, the HD AUDIO FM envelope waveform should be at maximum. If it is not at maximum then "ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION" is necessary. (Refer to "FINE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION".)

3–2–6. PRELIMINARY CONFIRMATION OF THE A/C HEAD HEIGHT

* Note: This procedure should be performed only when the A/C Head is replaced.

* Tools ~~and~~ Equipment Required:
Nut Driver (Purchase locally)

With the tape running, look at the lower edge of the Control Head and check if the lower edge of tape runs along the lower edge of the Control Head.
If it doesn't, slightly turn the nut (A) behind the A/C Head (Figure M21) to either lower or raise the A/C Head so that the tape runs along the lower edge of the Control Head. Turn the nut (A) clockwise to lower the head, and counterclockwise to raise it. (Figure M28).

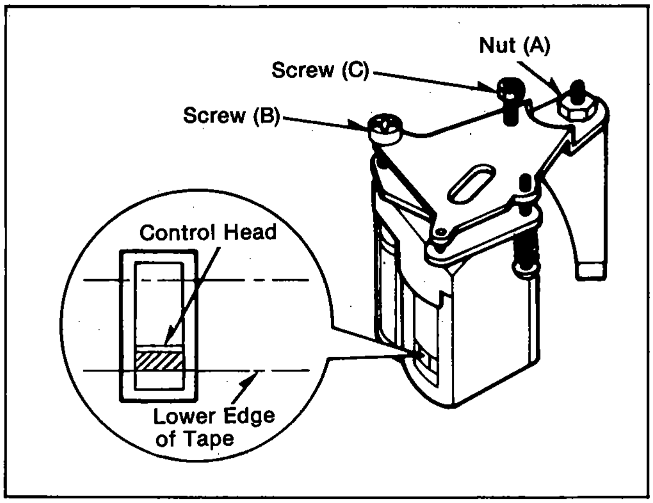


Figure M28 Confirmation of A/C Head Height

3–2–7. ADJUSTMENT OF THE A/C HEAD HEIGHT AND AZIMUTH

* Note: This procedure should be performed only when the A/C Head is replaced and posts heights are readjusted.

* Tools and Equipment Required:
Nut Driver (Purchase locally)
Alignment Tape..................VFM8080HMFPH

1. Connect the scope CH1 to the HD/NOR Audio Output CH1 and the scope CH2 to the HD/NOR Audio Output CH2 on the jack panel.
2. Playback the 2nd portion (Normal Audio 6kHz) of the alignment tape, VFM8080HMFPH.
3. Adjust the screw (B) so that the CH2 output level becomes maximum.(Figure M29)

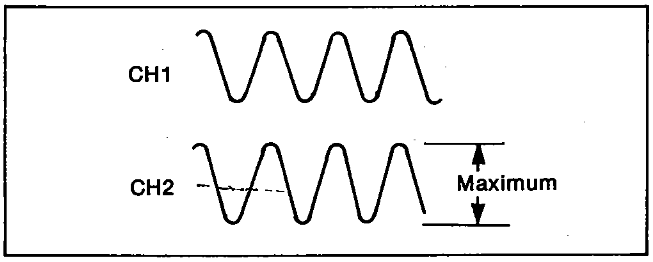


Figure M29 NORMAL AUDIO SIGNALS

4. Then adjust the nut (A) so that the CH2 envelope becomes maximum.
5. Readjust the screw (B) so that the phases of the both channels are matched as shown in Figure M30.

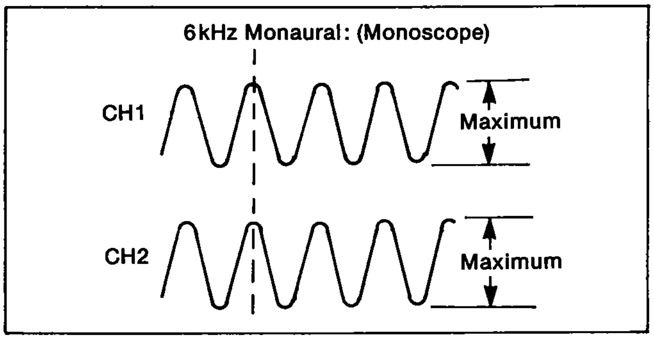


Figure M30 Adjustment of A/C Head Height and Azimuth

3–2–8. COARSE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION

* Note: This procedure should be performed only when the A/C head is replaced, and after performing the tape interchangeability adjustment.

* Tools and Equipment Required:
Alignment Tape..................VFM8080HMFPH

1. Set the Tracking Control VR to the center detent (fixed) position.
2. Set the Audio Select SW to the NORM position.
3. Connect the scope to TP5002 in the Head Amp C.B.A.and scope CH2 to the HD/Normal Audio Output CH2 on the jack Panel.
4. Playback 4th position (Monoscope and Normal Audio 3kHz)of the Alignment tape VFM8080HMFPH.
5. Adjust A/C Head horizontal position nut so that "T" width becomes 5msec as shown in Figure M31 and M32.

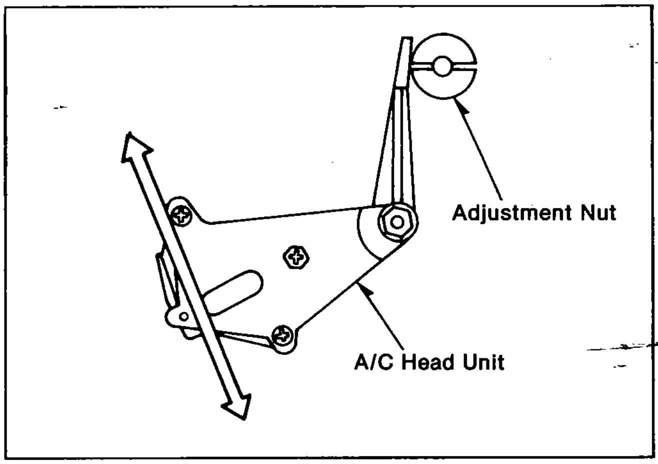


Figure M31 Coarse Adjustment of A/C Head

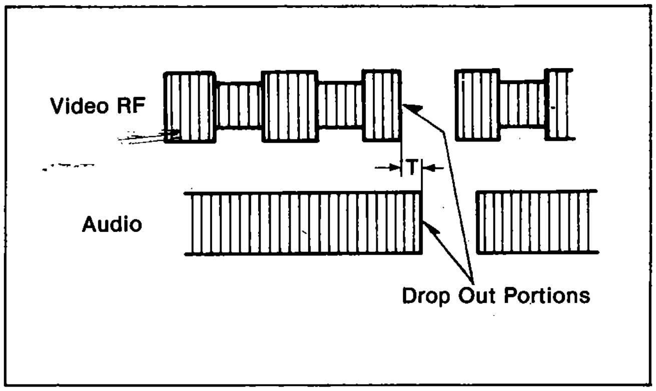


Figure M32 Horizontal Position Adjustment of A/C Head

* Note: After completion the fine adjustment of the A/C Head horizontal position, the phase of Audio drop out and RF drop out may be changed slightly.

3-2-9. FINE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION (X-VALUE)

* Note: When the A/C Head is replaced, the coarse adjustment of the A/C Head horizontal position is required before performing this fine adjustment.

* Tools and Equipment Required:
H.Position Adj. Fixture............VFKS0003
Alignment Tape.................VFM8080HMFPH

1. Set the Tracking Control VR to the center detent (fixed) position.
2. Connect the scope CH1 to TP5002 in the Head Amp C.B.A. and scope CH2 to TP5003 on the same board.
3. Playback 2nd position (Monoscope) of the Alignment tape, VFM8080HMFPH.
4. Adjust the adjust nut so that the RF envelope output level becomes maximum at the detent position.
5. Turn the Tracking VR from end to end and then back to the detent position.
   Confirm that the FM envelope output level is maximized at the detent position.

4. OTHER MECHANICAL ADJUSTMENT PROCEDURES

4-1. CONFIRMATION OF BRAKE TORQUE

* Equipment Required:
Dial Torque Gauge....................VFK0133
Adaptor for Gauge....................VFK0134

1. Attach the adaptor to the torque gauge and place the deck in stop mode. (Figure M32)
2. Place the torque gauge on the reel table. The weight of gauge should not rest on the reel table. (Figure M33)

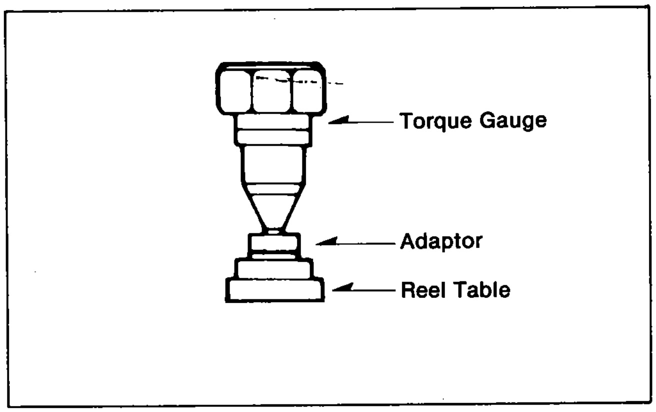
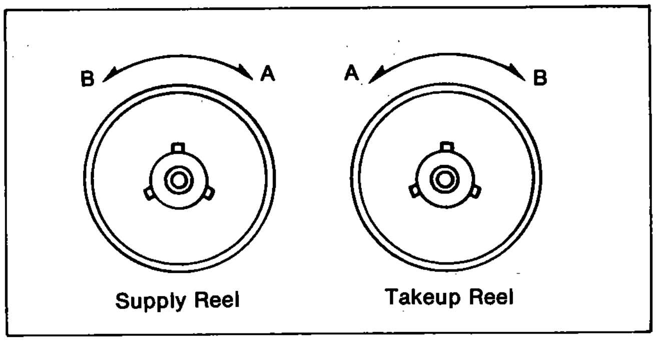


Figure M33 Confirmation of Brake Torque-(1)

3. Turn torque gauge in either direction indicated in the Figure M34 and read the gauge when the brake begins slipping.

* Notes:
1. If proper brake torque can not be obtained, clean the rotating surface of reel table with a soft cloth and recheck torque before replacing brake pad.



Reel	A	B
Takeup	300~1,200g-cm	more than 80g-cm
Supply	350~1,200g-cm	more than 40g-cm

Figure M34 Confirmation of Brake Torque-(2)

2. If proper brake torque can not be obtained after cleaning the rotating surface of reel table, replace the main brake units or reel tables.

4-2. CONFIRMATION OF BACK TENSION

* Equipment Required:
Back Tension Meter
VHS Cassette Tape (120 Minutes Tape)

* Specification: 25~30g

1. Pull the erase head in the direction indicated by the arrow and hold it by adhesive tape.
2. Play back the cassette tape from its beginning and wait until tape running has stabilized. (for approx. 10 to 20 seconds)
3. Insert tension meter in tape path and confirm reading. (Figure M35)

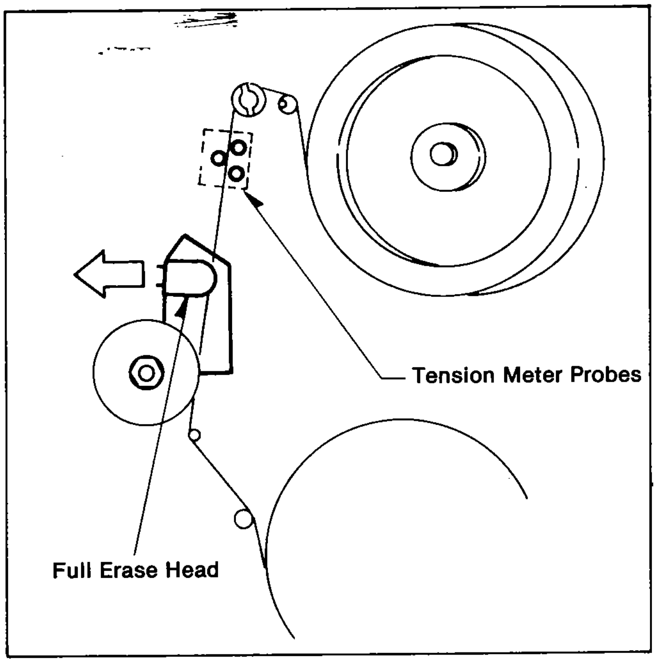


Figure M35 Confirmation of Back Tension

* Notes:

1. Make sure that the three probes of the meter are all in good contact with tape, but out of contact with any parts while measuring.
2. It is recommended to be measured three times as the tension meter is very sensitive.

4-3. HEIGHT ADJUSTMENT OF REEL TABLES

* Note: Cut–out on Post Adjustment Plate is reference of reel table height and their height is measured based on this reference.

* Equipment Required:
Post Adjustment Plate................VFKS0010
Reel Table Height Fixture............VFKS0009

* Specification: 0~–0.15mm

1. Place the post adjustment plate over the reels, and put the fixture on the plate. Set the fixture to zero "0" with the foot scraper of the fixture touching the cut–out portion of the plate. (Figure M36)

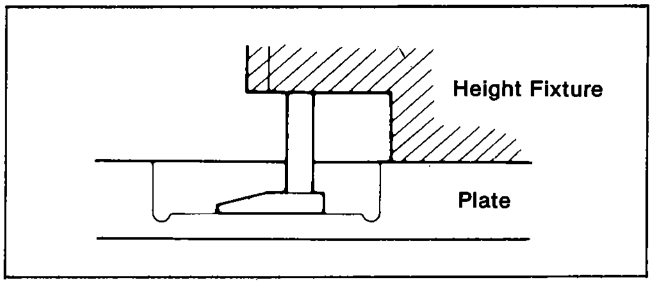


Figure M36 Height Adjustment of Reel Tables (1)

2. Then measure the top portion of reel table and confirm the difference just performed in former step. Do same for the other reel table. (Figure M37)

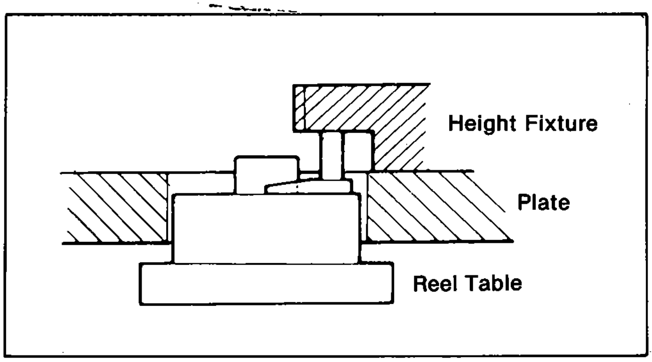


Figure M37 Height Adjustment of Reel Tables (2)

3. If a height difference in readings between the cut–out portion of plate and reel tables is not 0~0.15mm (higher or lower),adjust the height of the reel to obtain specified height.
4. For adjustment add or remove a washer located under the reel table. (Figure M38)

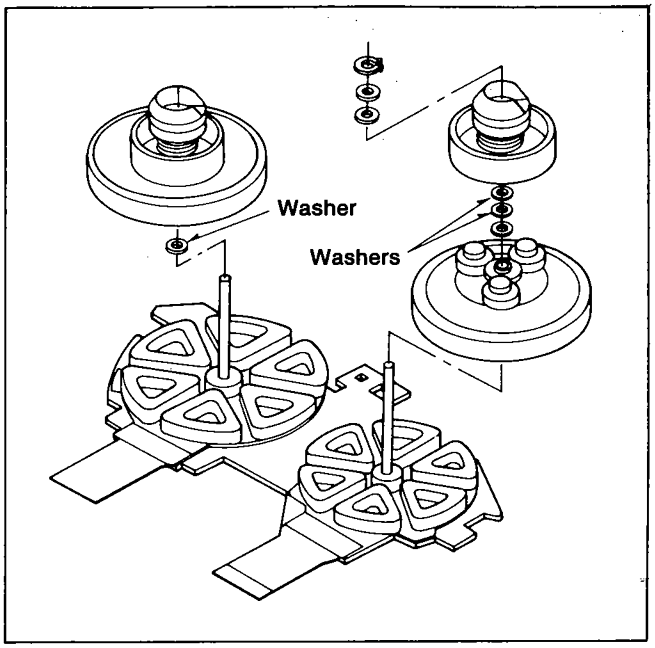


Figure M38 Height Adjustment of Reel Tables (3)

* Notes: When adjusting the height of the tables, the DD Reel Unit needs to be removed from the chassis.
(Removal of the DD Reel Unit.)
Remove 7 screws and carefully lift it out.
(Figure M39)

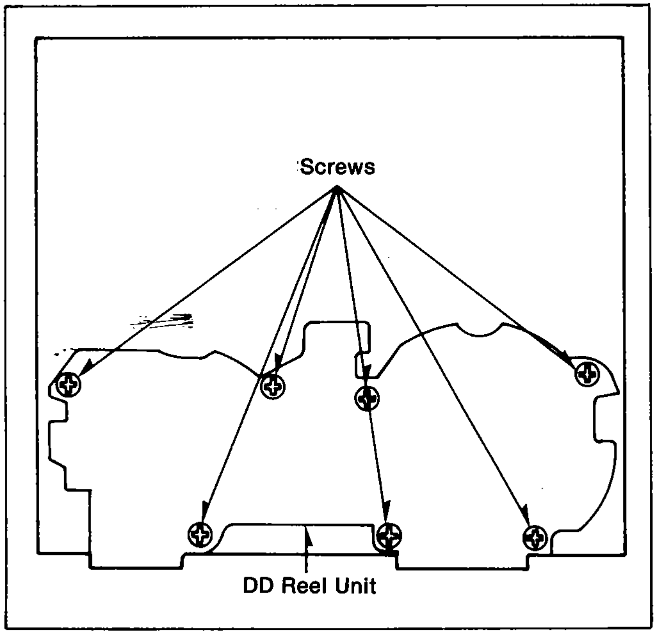


Figure M39 Bottom View of DD Reel Unit

4-4. ADJUSTMENT OF F.G. HEAD GAP

* Specification: 0.18(+−0.02)mm

1. Slightly loosen the 2 screws.
2. Hold the F.G Head Unit with your fingers, and adjust the gap as specified.
3. After adjustment, tighten 2 screws. (Figure M40)

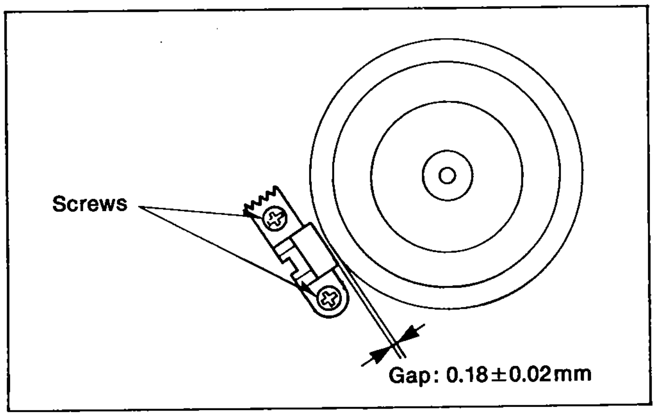


Figure M40 Adjustment of FG. Head Gap

* Note: Do not scratch the F.G. Head or outside surface of the rotor.

4-5. ASSEMBLY AND ADJUSTMENT OF GEARS AND ROD

<GENERAL CONDITION>

The mechanism of this model is mostly engaged to the System Control Circuit, through the mode select switch.
Therefore the relation between the mode select switch and the cam gear decides all further mechanical movement of the mechanical parts such as levers, gears, ~~rollers and~~ so on.
If the adjustment of this item is performed improperly, the deck will be unloaded or compulsorily stopped.
And it may result in damage to mechanical or electrical parts.

4–5–1. ADJUSTMENT OF LOADING ARM

1. Install the supply and takeup loading arm units so that the projection (A) on the takeup loading gear aligns with the projection (B) on the supply loading gear.
   Then install the 2 retaining rings on the supply loading gear and on the takeup loading gear.
   Ensure that the loading arm units are still in the fully unloaded condition. (Figure M41)

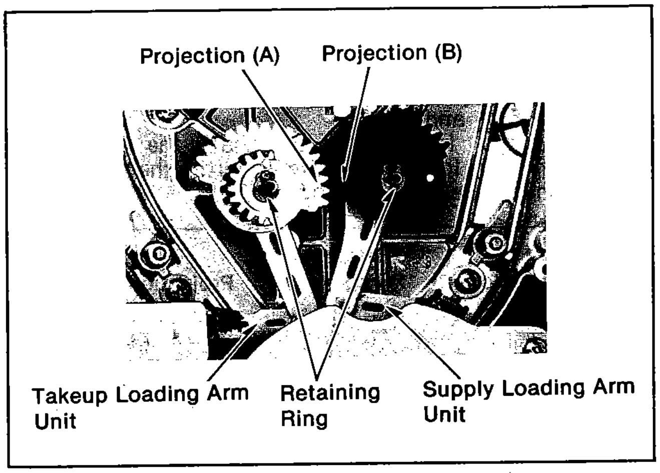


Figure M41 Assembly and Adjustment of Gears and Rod-(1)

* Note: Pay attention that the washers are still under the loading gears.

4–5–2. ADJUSTMENT OF CAM GEAR

1. Make sure the position of Loading Arm is as Figure M41 before proceeding with this adjustment.
2. Install the cam gear so that the hole on the cam gear meets the hole on the chassis. Then install the retaining ring.(Figure M42)

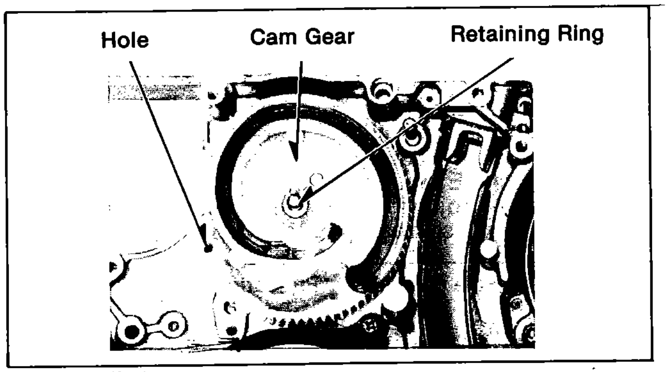


Figure M42 Assembly and Adjustment of Gears and Rod-(2)

3. Install the lock arm as shown in Figure M43. Then install the retaining ring and the washer.

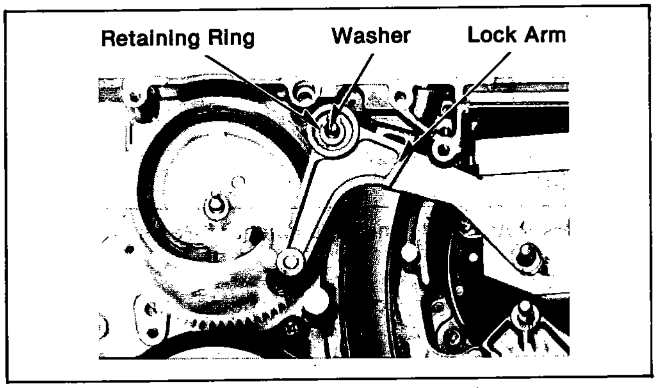


Figure M43 Assembly and Adjustment of Gears and Rod-(3)

* Note: Pay attention that the washer is still under the lock arm.

4–5–3. ADJUSTMENT OF LOCK GEAR

1. Perform the adjustment after making sure the mechanism position is as described in previous item 4–5–1 and 4–5–2.
2. Install the lock gear so that the projection (C) on the lock gear aligns with the projection (D) on the takeup loading gear.

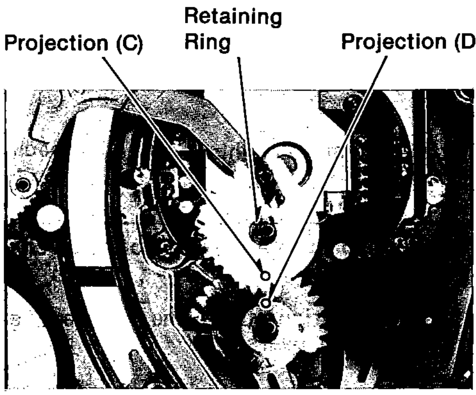


Figure M44 Assembly and Adjustment of Gears and Rod-(4)

3. Install the support plate with the screw.

4–5–4. ADJUSTMENT OF MODE SELECT SWITCH

1. Perform this adjustment after making sure the mechanism position is as described in previous item 4–5–1, 4–5–2 and 4–5–3.
2. Rotate the gear on the mode select switch so that it is in click (detent) position. Then install the mode select switch so that the delta hole (E) on the rotary switch gear aligns with the projection (F) on the cam gear, and install the 2 screws. (Figure M45)

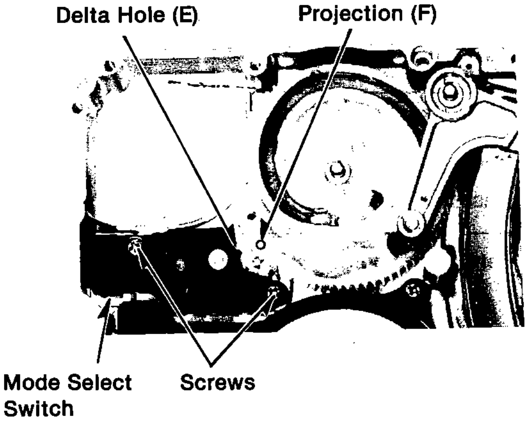


Figure M45 Assembly and Adjustment of Gears and Rod-(5)

* Note: There is one click point per 4 rotations.

3. Install the loading motor with 2 screws. (Figure M46)

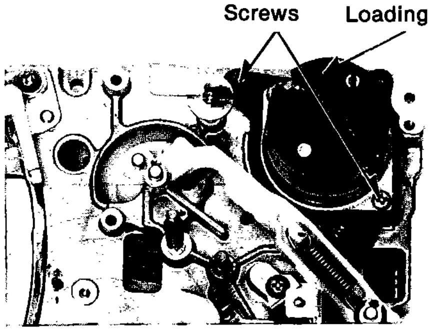


Figure M46 Assembly and Adjustment of Gears and Rod-(6)

4. Confirm that the cam gear is in the EJECT condition.

4–5–5. ASSEMBLY PROCEDURE OF MAIN ROD, BRAKE ARM, BRAKE CAM GEAR

1. Perform the assembly after making sure the mechanism position is as described in previous item A,B,C, and D.
2. Install the main rod so that the hole on the main rod meets the hole on the chassis. Then install the brake arm, the brake cam gear, the washer and the 3 retaining rings. (Figure M47)

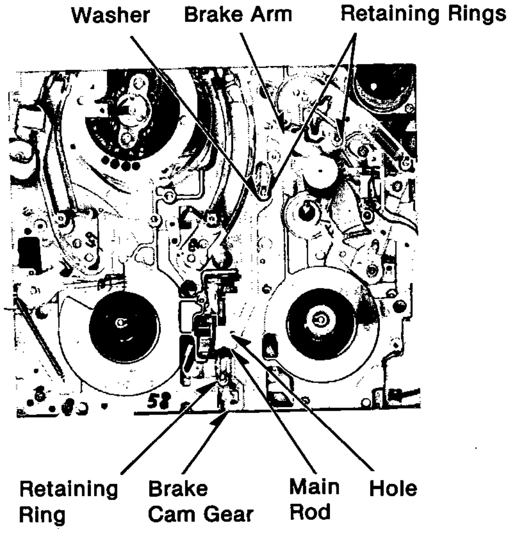


Figure M47 Assembly and Adjustment of Gears and Rod-(7)

4-6. ADJUSTMENT OF LEAF SWITCH

* Equipment Required:
Fine Adjustment Screwdriver...........VFK0330

* Specification: 0.9mm~1.3mm

1. Remove the DD Reel Unit from the chassis. Slightly loosen the screw (A) and insert the Fine Adjustment Screwdriver to the Hole (B).

2. By rotating the Fine Adjustment Screwdriver, adjust the leaf switch so that gap (C) is 0 and the gap (D) between the upper and lower plates of the leaf switch is 0.9mm to 1.3mm, and tighten screw (A).
3. Install the DD Reel Unit. (Figure M48)

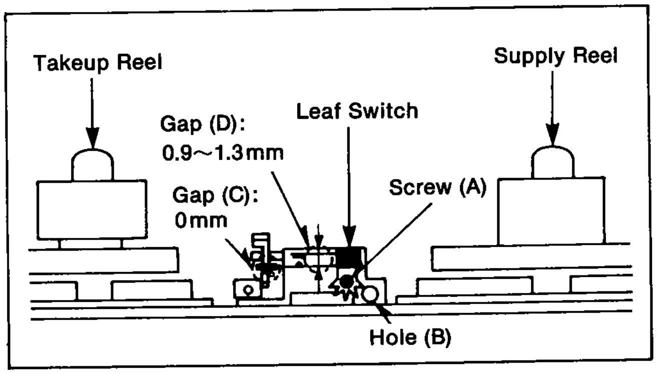


Figure M48 Adjustment of Leaf Switch

* Note: After adjustment, confirm that the leaf switch turns ON when the Cassette Up Unit is pressed down, and turns OFF when the Cassette Up Unit is raised.

4-7. POSITION ADJUSTMENT OF RECORDING SAFETY SWITCH

* Equipment Required:
Cassette Holder Fixture.............VFK0188
Fine Adjustment Screwdriver..........VFK0330

1. Place the fixture in place over the reel tables.
2. Confirm Rec. Safety Switch position is just turned ON.
3. When Rec. Safety Switch position is not right, remove the fixture and loosen a screw (A).
4. Insert the fine adjustment screwdriver into the hole (B), and adjust the position. Then tighten the screw (A).
5. Reinstall the fixture and confirm again.(Figure M49)

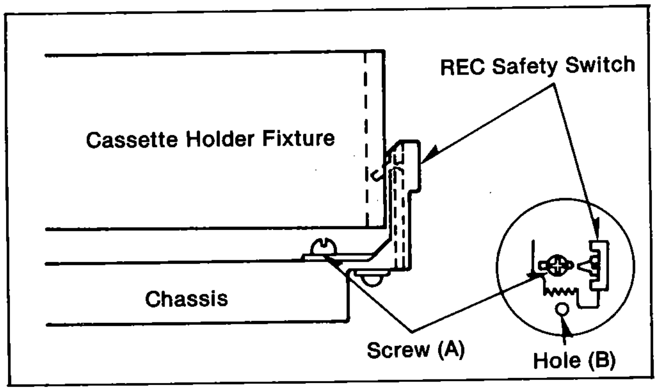


Figure M49 Position Adjustment of Recording Safety Switch-(1)

* Note: cassette with a safety tab is used, the Rec Safety switch Turns on and without a tab, it opens. (Figure M50)

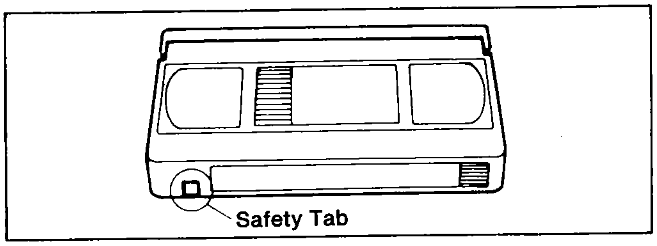


Figure M50 Position Adjustment of Recording Safety Switch-(2)

ELECTRICAL ADJUSTMENT PROCEDURES

This section provides complete electrical adjustment procedures which may be required for electronic circuits of VHS Video Cassette Recorder.

1. TEST & SERVICE EQUIPMENT

To perform the electrical adjustment completely, following equipments are required.

1. VTVM(Vacuum Tube Volt Meter) or DVM(Digital Volt Meter)
   Voltage Range: 0.001–50V
2. Dual–Trace Oscilloscope
   Voltage Range: 0.005–50V/div.
   Frequency Range: DC–20MHz
   Probes: 10:1 or 1:1
3. Frequency Counter
   Frequency Range: 0–10MHz
4. Signal Generator(Sine wave)
   Frequency Range: 0–10MHz
5. Video Sweep Generator
   Frequency Range: 0–10MHz
6. Color Monitor TV
7. Plastic Tip Driver
8. Video Signal Generator
9. VHS Alignment Tape (VFM8080HMFPH)

2. ADJUSTMENT PROCEDURES

2-1. HOW TO READ THE ADJUSTMENT PROCEDURES

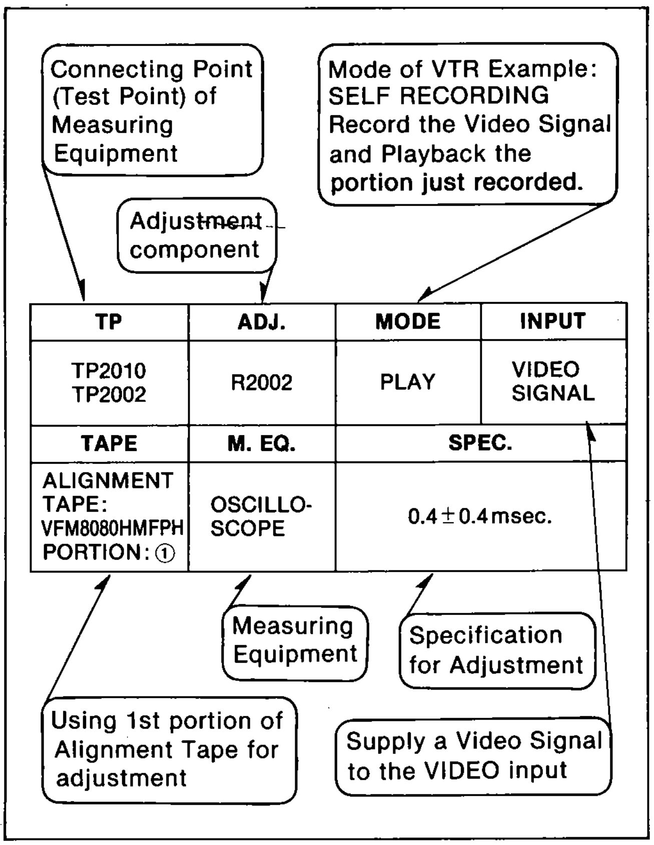

Connecting Point (Test Point) of Measuring Equipment
Mode of VTR Example: SELF RECORDING Record the Video Signal and Playback the portion just recorded.
Adjustment component
TP
ADJ.
MODE
INPUT
TP2010 TP2002
R2002
PLAY
VIDEO SIGNAL
TAPE
M. EQ.
SPEC.
ALIGNMENT TAPE: VFM8080HMFPH PORTION: ①
OSCILLO-SCOPE
0.4±0.4msec.
Measuring Equipment
Specification for Adjustment
Using 1st portion of Alignment Tape for adjustment
Supply a Video Signal to the VIDEO input

Figure E1

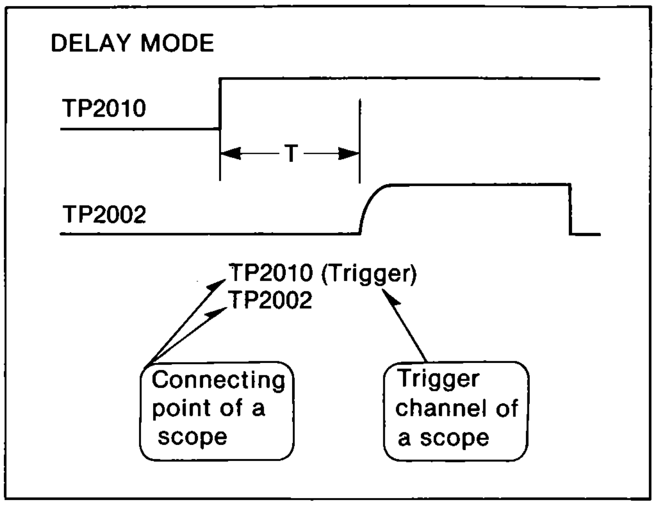


Figure E2

Note:
Unless otherwise specified, set the following switches to the following position.

SWITCH	POSITION
Y/C FILTER	OFF
DETAIL	ON

2-2. POWER SUPPLY SECTION

2-2-1. +5V ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP1001	R1015	STOP	
TAPE	**M. EQ.**	**SPEC.**	
	D.V.M.	5.1±0.1V	

Note:
1. Supply the DC to the deck using the AC Adaptor Model AG–B640.
2. This specification should be confirmed before any other item because this voltage will affect overall circuit.

2-3. SYSTEM CONTROL SECTION

2-3-1. +9V ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP6004	VR6004	STOP	
TAPE	**M. EQ.**	**SPEC.**	
	D.V.M.	$9.3^{+0.4}_{-0.5}$V	

1. Before this adjustment, "+5V ADJUSTMENT" must be completed.

2-3-2. UNDER CUT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP6002	VR6001	REC	
TAPE	**M. EQ.**	**SPEC.**	
	OSCILLO-SCOPE		

1. Connect the DC voltage(10.6+−0.05V DC) to P6007−2(+side) and P6007−3(−side).
2. Turn VR6001 to the position where the indication of D.V.M. at TP6002 becomes low level from high level.

2-4. SERVO SECTION

2-4-1. PG SHIFT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP2006 TP3006	VR2001	PLAY	
TAPE	**M. EQ.**	**SPEC.**	
ALIGNMENT TAPE VFM8080HMFPH PORTION: ②	OSCILLO-SCOPE	6±0.5H	

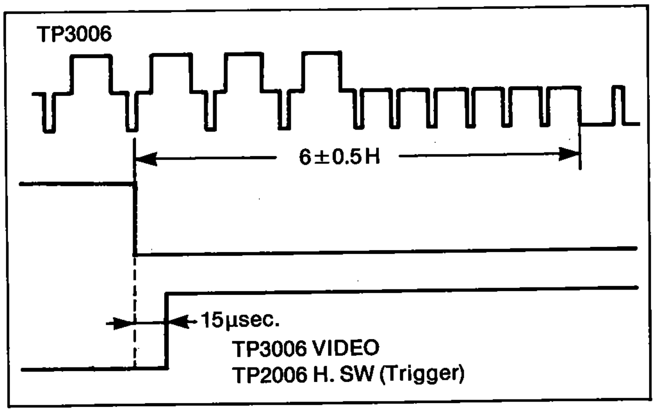


Figure E3

2-4-2. TRACKING FIX ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP2002 TP2006	VR2002	REC ↓ PLAY	COLOR BAR SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK	OSCILLO-SCOPE	T=7.3±0.4msec.	

1. Set the Tracking VR on the front panel to the center fix position.
2. Adjust VR2002 so that the period of "T" becomes 7.3+−0.4msec. as shown in Figure E4.

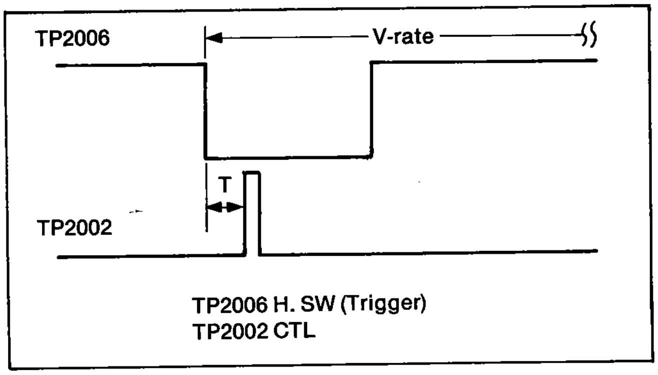


Figure E4

2-4-3. FINE SLOW SPEED ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP5002 TP2006	VR2004	REC ↓ PLAY ↓ SLOW	COLOR BAR SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK	OSCILLO-SCOPE		

Note:
1. Before this adjustment, "Tape Interchangeability Adjustment" must be completed.

1. Slow Tracking VR is center position.
2. Play back the just recorded portion in Slow mode.
3. Adjust VR2004 so that the RF envelope at TP5002 is as linear as possible.

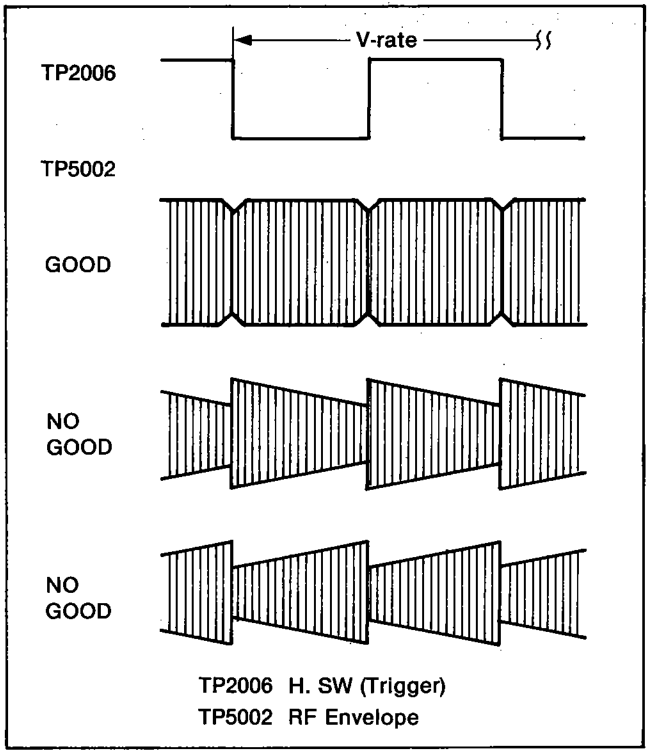


Figure E5

2-4-4. ARTIFICIAL V-SYNC ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP2006 IC2004-18	VR2003	REC ↓ PLAY ↓ STILL	COLOR BAR SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK	OSCILLO-SCOPE	t≦20μsec.	

1. Play back the just recorded portion.
2. Set the deck in STILL mode and adjust VR2003 as shown in Figure E6.

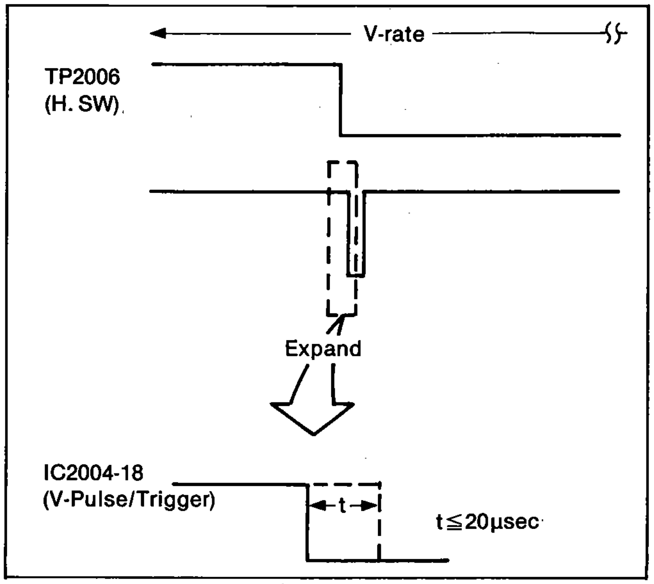


Figure E6

2-5. VIDEO (1) SECTION

2-5-1. E-E LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3006 TP3012 TP3013	VR3007 VR3011 VR3511	STOP	COLOR BAR SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
	OSCILLO-SCOPE	SEF Figure E7, E8, E9	

(1) Composite Signal Output Level Adjustment
Connect a scope to TP3006 and adjust VR3007 so that the level becomes 1.00+–0.05Vp–p as shown in Figure E7.

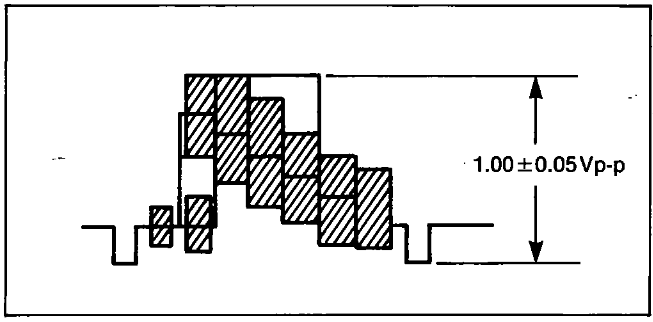


Figure E7

(2) Y Signal Output Level Adjustment
Connect a scope to TP3012 and adjust VR3011 so that the level becomes 1.00+–0.05Vp–p as shown in Figure E8.

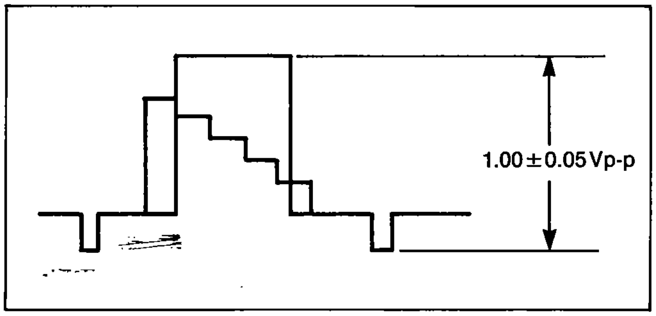


Figure E8

(3) C Signal Output Level Adjustment
Connect a scope to TP3013 and adjust VR3511 so that the level becomes 0.65+–0.05Vp–p as shown in Figure E9.

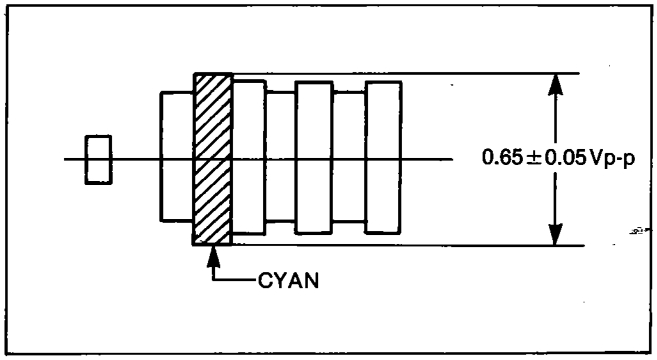


Figure E9

2-5-2. SUB EMPHASIS LIMITER BALANCE ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3004	VR3009	STOP	
TAPE	**M. EQ.**	**SPEC.**	
	D.V.M.	3.48±0.05V	

2-5-3. DEVIATION ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3002	VR3003 VR3005	REC/PLAY	COLOR BAR SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK	OSCILLO-SCOPE	SEE Figure E10	

Note:
Before this adjustment "AGC Level Adjustment" should be completed.

1. Set the VIDEO LEVEL Switch to AGC position.
2. Supply a color bar signal to the VIDEO INPUT on the rear panel.
3. Connect a scope to TP3002.
4. Supply a 5.4MHz sinewave signal at −40dB (0.028Vp−p) to TP3003 through a 0.01uF capaciter. Set the frequen−cy preclsely with a frequency counter.
5. Set the unit in REC/PLAY mode.
6. Adjust SYNC VR3004 so that the beat on the snyc tip portion of the signal becomes minimum as shown in Figure E10.
7. Next, supply a 7MHz sinewave signal at −40dB (0.028Vp−p) to TP3003 through a 0.01uF capacitor. Set the frequency precisely with a frequency counter.
8. Set the unit REC/PLAY mode.
9. Adjust DEV VR3003 so that the beat on the white peak portion of the signal becomes minimum as shown in Figure E10.

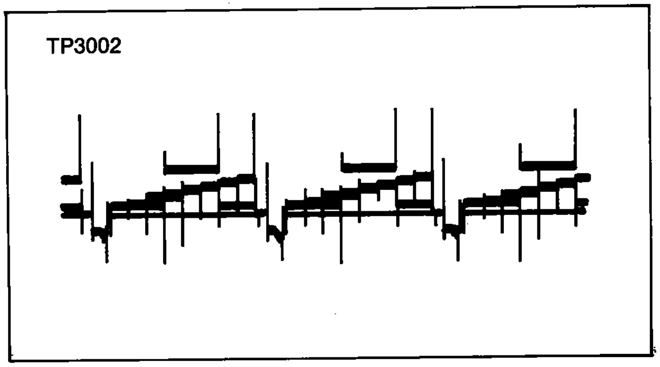


Figure E10

2-5-4. S-VHS WHITE CLIP, DARK CLIP ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3002	VR3005 (D.C) VR3006 (W.C)	S-VHS STOP	COLOR BAR SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	OSCILLO-SCOPE	W.C: 200% D.C: −70%	

1. Turn the S−VHS SW ON.

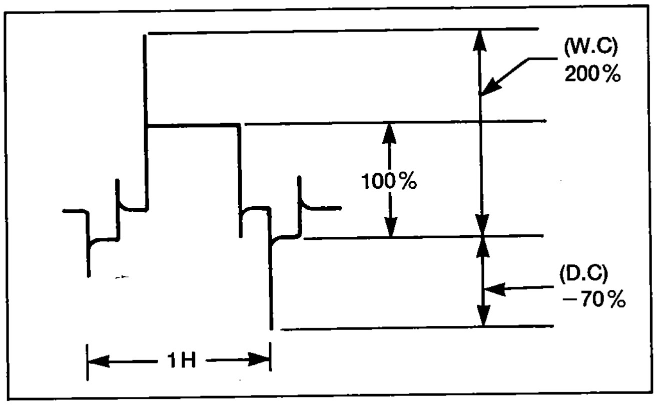


Figure E11

2-5-5. REC CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP5001 TP5004 TP3014	VR3001 VR3002 VR3509	REC	COLOR BAR SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	OSCILLO-SCOPE	C: 32±4mVp-p Y (S-VHS): 140±5mVp-p Y (VHS): 140±5mVp-p	

1. Turn the S−VHS SW ON.
2. Connect the scope to TP5001(HOT) and TP5004(GND).
3. Turn VR3002 fully counter−clockwise.
4. Adjust VR3509 so that the cyan level becomes 32+−4mVp−p.
5. Remove TP5004 from GND.
6. Adjust VR3002 so that the sync tip of FM signal becomes 140+−5mVp−p.
7. Turn the S−VHS SW OFF.
8. Adjust VR3001 so that the sync tip of FM signal becomes 140+−5mVp−p.

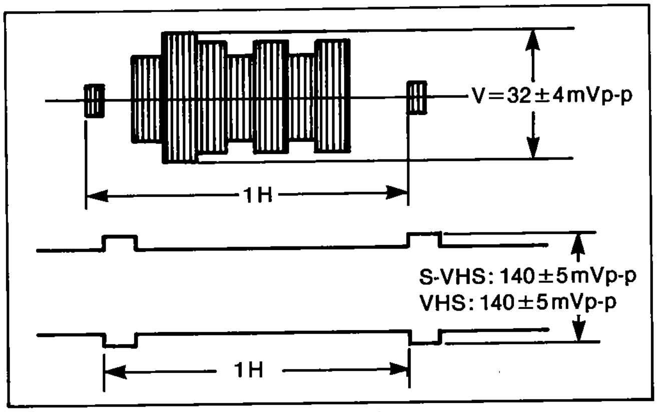


Figure E12

2-5-6. PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3001 TP3012 TP3013	VR3008 VR3012 VR3510 VR3508	REC ↓ PLAY	COLOR BAR SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	OSCILLO-SCOPE	C: 0.65±0.05Vp-p Y: 1.00±0.05Vp-p	

1. Turn the S–VHS SW ON and Datail SW OFF.
2. Connect Y OUTPUT and C OUTPUT to 75ohm terminate.
3. Connect a scope to TP3001 and adjust VR3012 so that the level becomes 400+–10mVp–p.
4. Connect a scope to TP3012 and adjust VR3510 so that the level becomes 1.00+–0.05Vp–p.
5. Connect a scope to TP3013 and adjust VR3508 so that the cyan level becomes 0.65+–0.05Vp–p.
6. Turn the S–VHS SW OFF.
7. Connect a scope to TP3012 and adjust VR3008 so that the level becomes 1.00+–0.05Vp–p.

2-5-7. LUMINANCE PLAYBACK FREQUENCY RESPONSE ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3012	VR3010	REC ↓ PLAY	VIDEO SWEEP
TAPE	**M. EQ.**	**SPEC.**	
BLANK	OSCILLO-SCOPE	B/A=70±10%	

1. Supply the following signal to the VIDEO INPUT at 75ohm termination.

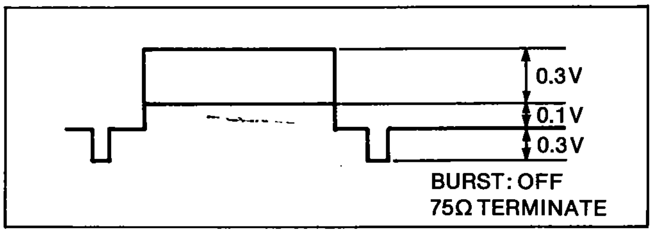


Figure E13

2. Set the PICTURE VR to the center position.
3. Turn the S–VHS SW ON.
4. Play back the just recorded portion.
5. Connect a scope to TP3012 and adjust VR3010 so that B/A is 70+–10% in both channels(L and R channels).

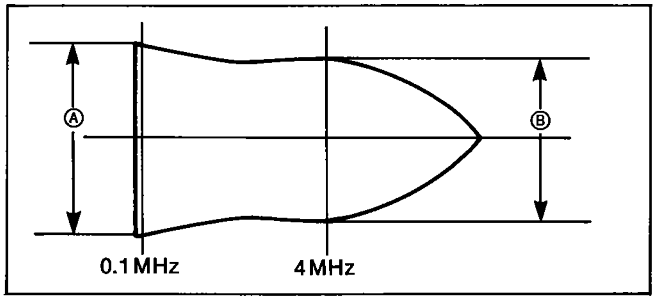


Figure E14

2-6. VIDEO (2) SECTION

2-6-1. LUMINANCE NOISE REDUCTION BALANCE ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3501	VR3505	REC ↓ PLAY	COLOR BAR SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE		

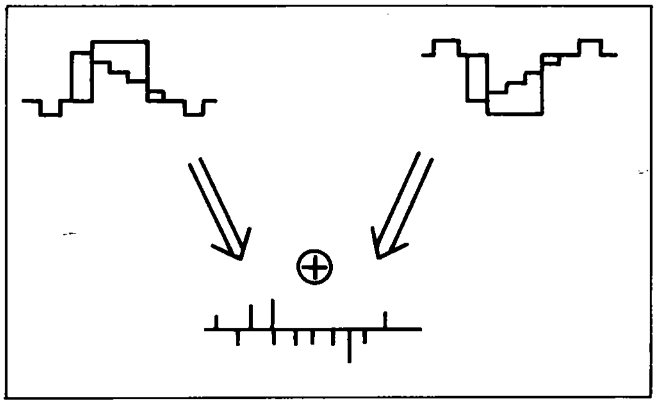


Figure E15

2-6-2. Y/C FILTER ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3012	VR3512 VR3513	REC ↓ PLAY	COLOR BAR SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK	OSCILLO-SCOPE	MINIMUM	

Note:
Before this adjustment, "LUMINANCE NOISE REDUCTION ADJUSTMENT" should be completed.

1. Turn the S–VHS SW ON and the Y/C Filter SW ON.
2. Input the color bar signal to the Y pin of the S–VIDEO IN connector .
3. Connect a scope to TP3012 and adjust VR3512 and VR3513 so that the cyan level is minimized.

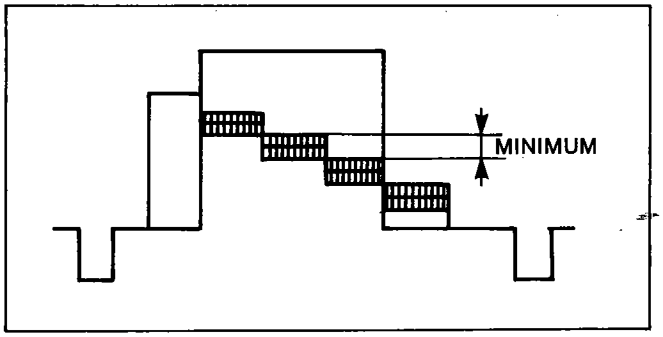


Figure E16

2-6-3. CHROMINANCE RECURSIVE ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3505	VR3506 VR3507	S-VHS REC ↓ PLAY	COLOR BAR SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK	OSCILLO-SCOPE		

1. Turn the S–VHS SW ON and play back the just recorded portion.
2. Turn the Detail SW ON.
3. Connect a scope to TP3503 and adjust VR3506 and VR3507 so that the level becomes minimum.

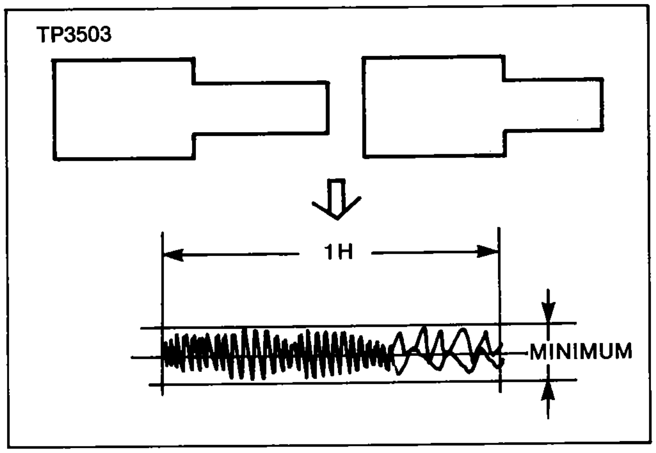


Figure E17

2-6-4. COMB FILTER ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3505 TP3002	VR3501 C3578, VR3503 C3633, VR3502	STOP	COLOR BAR SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
	OSCILLO-SCOPE	A≦10mV B≦35mV	

Note:
Before this adjustment, "DEVIATION ADJUSTMENT" should be completed.

1. Connect TP3514 to GND.
2. Connect a scope to TP3505 and adjust VR3501 and C3578 so that the chrominance level becomes maximum.
3. Connect a scope to TP3505 and adjust VR3503 so that the ringing of sync portion becomes minimum.

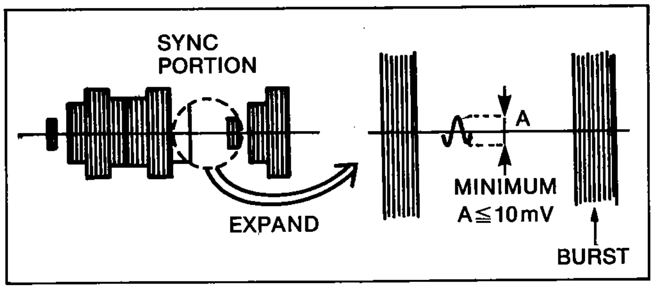


Figure E18

4. Connect a scope to TP3002 and adjust VR3502 and C3633 so that the chrominance level becomes minimum.

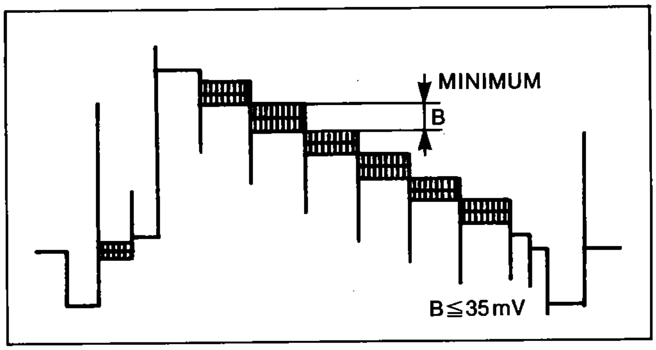


Figure E19

2-7. NORMAL AUDIO SECTION

2-7-1. NORMAL AUDIO INPUT/OUTPUT LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
AUDIO OUT	NORMAL: VR4009, VR4010 HD: VR4506, VR4507	STOP	LINE: 1kHz, −10dBV MIC: 1kHz, −56dBV CAMERA: 1kHz, −20dBV
TAPE	**M. EQ.**	**SPEC.**	
	OSCILLATOR, V.T.V.M		

1. Set the Audio Level VRs (CH1–HD/NORM, CH2–HD/NORM) on the front panel to the center position .
2. Turn the Audio Select SW NORM and the Normal Audio In Select SW LINE.
3. Connect the V.T.V.M. to Line Out and adjust VR4009 and VR4010 so that the levels become −8+−0.1dBV.
4. Turn the Audio Select SW HD and the HD Audio In Select SW LINE.
5. Adjust VR4507 and VR4506 so that the level become −8+−0.1dBV.

2-7-2. AUDIO LEVEL METER ADJUSTMENT

TP	ADJ.	MODE	INPUT
AUDIO METER	VR4205 (CH1) VR4206 (CH2)	STOP	1kHz, −10dBV AUDIO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
		0dB	

1. Supply an audio signal (1kHz,−10dBV =0.32Vrms =0.9Vp–p) to the Audio Inputs.
2. Confirm the normal audio output level is −8dBV(0.4Vrms=1.1Vp–p).

3. Adjust VR4205(CH1) and VR4206(CH2) so that the needless of audio level meter become "0" point.

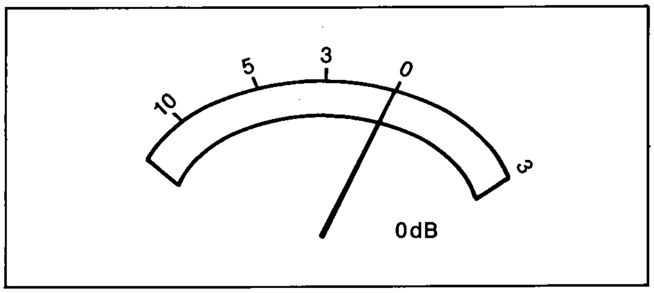


Figure E20

2-7-3. NORMAL AUDIO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP4401 (CH1) TP4402 (CH2)	VR4001 (CH1) VR4002 (CH2)	PLAY	
TAPE	**M. EQ.**	**SPEC.**	
ALIGNMENT TAPE VFM8080HMFPH PORTION: ⑤	OSCILLO-SCOPE	300mVp-p (400Hz PORTION)	

1. Turn the Dolby SW OFF.

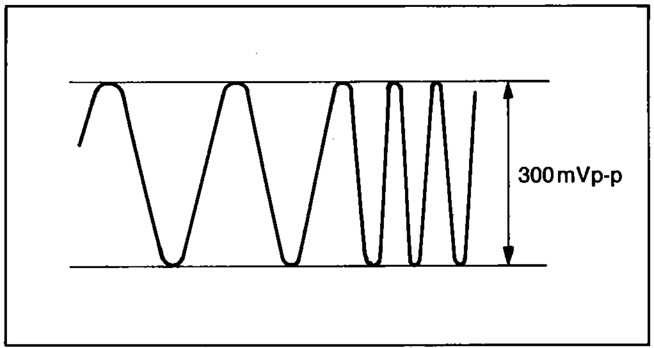


Figure E21

2-7-4. NORMAL AUDIO PLAYBACK FREQUENCY RESPONSE ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP4401 (CH1) TP4402 (CH2)	VR4007 (CH1) VR4008 (CH2)	PLAY	
TAPE	**M. EQ.**	**SPEC.**	
ALIGNMENT TAPE VFM8080HMFPH PORTION: ⑤	OSCILLO-SCOPE	0±2dB (79%~126%)	

1. Turn the Dolby SW OFF.
2. Adjust VR4007(CH1) and VR4008(CH2) so that the difference between the level at 400Hz portion and 8kHz portion becomes 0+-2dBV.

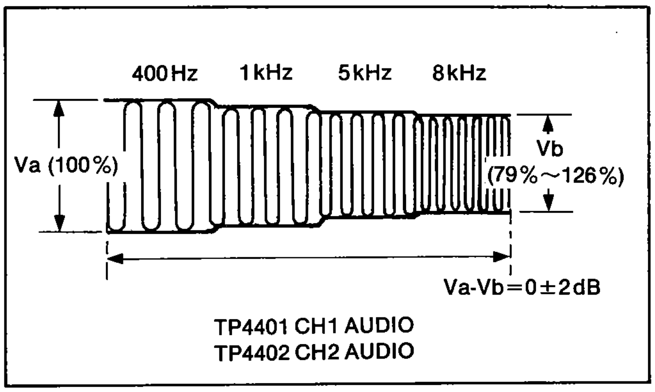


Figure E22

2-7-5. NORMAL AUDIO BIAS CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
A/C HEAD CONNECTOR	S-VHS: VR4003 VR4004 VHS: VR4009 VR4010	REC	
TAPE	**M. EQ.**	**SPEC.**	
VHS, S-VHS BLANK	V.T.V.M.	S-VHS: 2.4±0.1mVrms VHS: 1.9±0.1mVrms	

1. Connect the V.T.V.M. to the A/C Head connector with a coaxial cable(3C2V) which is less than 1m as shown in Figure E24.

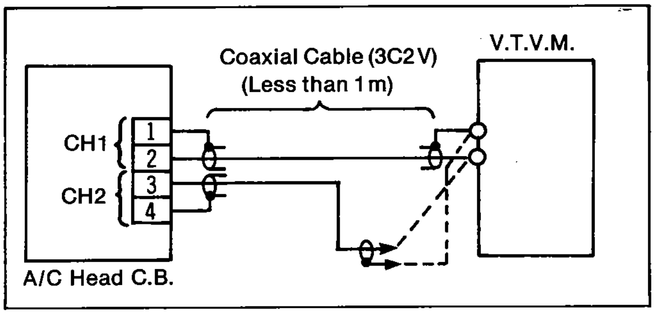


Figure E23

2-7-6. NORMAL AUDIO RECORDING CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP4001 (CH1) TP4002 (CH2) AUDIO OUT	VR4005 (CH1) VR4006 (CH2)	REC ↓ PLAY	1kHz, −10dBV AUDIO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK	V.T.V.M.	LESS THAN 0±0.5dBV	

1. Supply an audio signal(1kHz,−10dBV =0.3Vrms =0.89Vp−p) to the Audio Inputs.
2. Adjust VR4005(CH1) and VR4006(CH2) so that the voltages at TP4001(CH1) and TP4002(CH2) becomes 350mVrms(10mVp−p) in REC mode. Then read the voltage values "A(CH1)" and "B(CH2)" at the Audio Outputs.
3. Play back the just recorded portions, and read the voltage values "A'(CH1)" and "B'(CH2)" at the Audio Outputs.

4. If the difference between "A(CH1)" and "A'(CH1)" is more than 0+-0.5dBV, adjust VR4005(CH1) ao that the difference decrease.
5. If the difference between "B(CH2)" and "B'(CH2)" is more than 0+-0.5dBV, adjust VR4006(CH2) so that the difference decrease.
6. Repeat self recording and play back, and compare the E-E level and playback level.
7. If the differences between the E-E levels and the playback levels are out of specification, adjust VR4005(CH1) and VR4006(CH2) so that the differences are decrease.
8. Repeat item 7 till the differences are into the specification.

2-8. HD AUDIO SECTION

2-8-1. HD AUDIO HEAD SW SHIFT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP2006 TP4508	VR4505	PLAY	
TAPE	**M. EQ.**	**SPEC.**	
ALIGNMENT TAPE VFM8080HMFPH PORTION: ①	OSCILLO-SCOPE	T=5.55±0.03msec.	

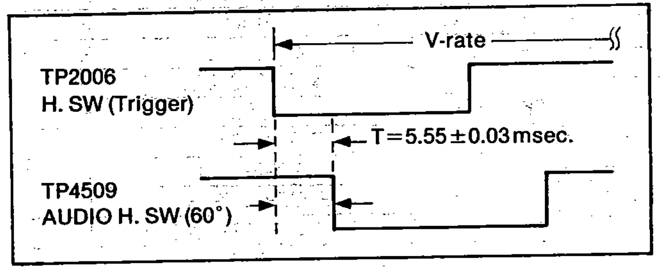


Figure E24

2-8-2. HD AUDIO RECORDING CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP4504 (HOT) TP4503 (GND)	VR4504	REC	
TAPE	**M. EQ.**	**SPEC.**	
BLANK	OSCILLO-SCOPE	180±10mVp-p	

1. Connect two jumper wires between Audio Input and GND.
2. Connect a jumper wire between TP4505 and GND.

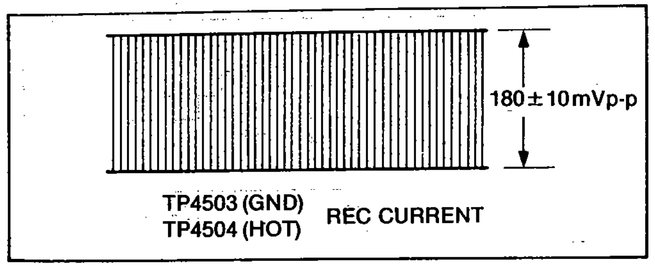


Figure E25

2-8-3. HD AUDIO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
AUDIO OUT	VR4501 (CH1) VR4503 (CH2)	REC ↓ PLAY	1kHz, −10dBV AUDIO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK	V.T.V.M.	E-E LEVEL±0.5dBV	

1. Supply an audio signal −10dBV(1kHz, 0.3Vrms =0.89Vp−p) to the Audio Inputs.
2. Place the deck in the REC/PLAY mode, and at the same time, read the levels at CH1 and CH2 Audio Inputs.
3. Play back the portion just recorded and adjust VR4501(CH1) and VR4503(CH2) so that the levels at CH1 and CH2 Audio Outputs become +−0.5dBV of the E−E levels.
[If E−E levels are −8dBV(0.4Vrms=1.12Vp−p), Playback levels should be −7.5dBV∼−8.5dBV (0.42Vrms∼0.38Vrms=1.2Vp−p∼1.06Vp−p).]

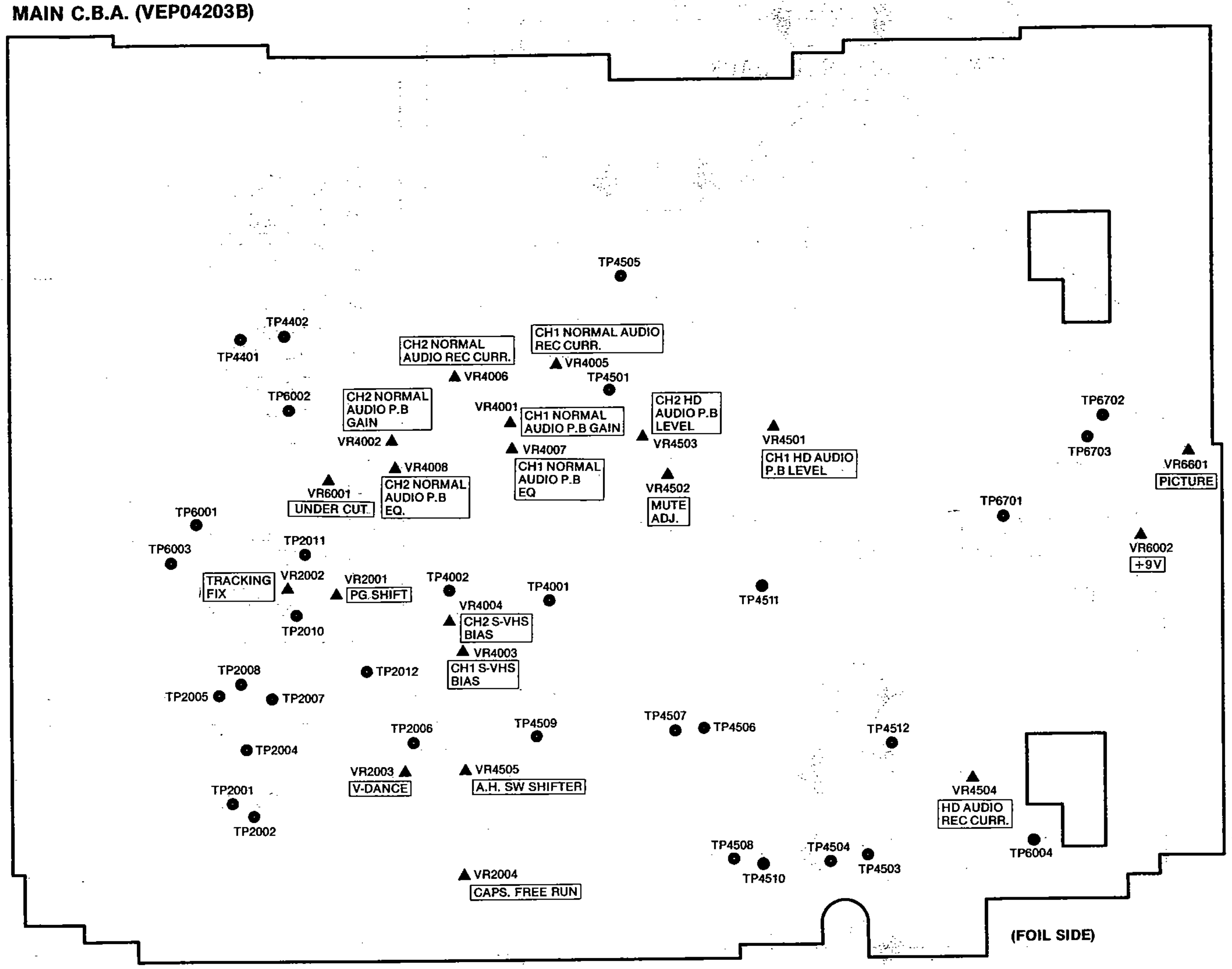
2-8-4. HD AUDIO MUTING LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP4508	VR4502	SELF RECORDING	1kHz, −10dBV AUDIO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE		

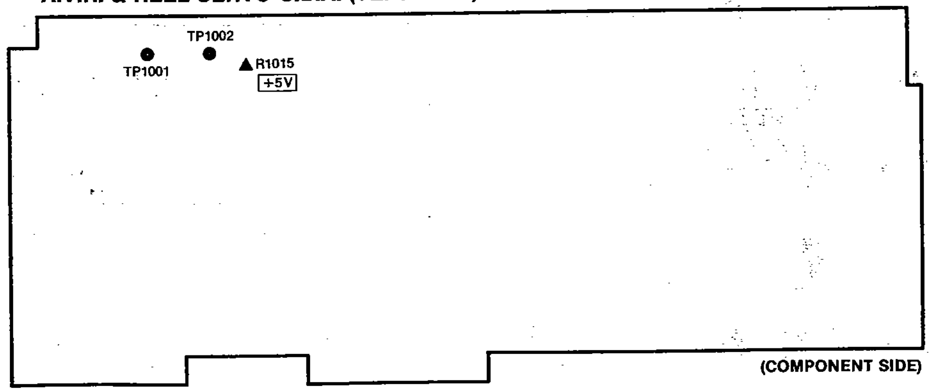
1. Supply an audio signal(1kHz,−10dBV =0.3Vrms =0.89Vp−p) to the Audio Input jacks.
2. Place the deck in the REC/PLAY mode.
3. Play back the just recorded portions and adjust the Tracking VR so that the level of the envelope at TP4508 becomes −10dBV(maximum level=0dBV).
4. Turn VR4502 to clockwise until muting starts.

LOCATION OF TEST POINTS & CONTROLS

MAIN C.B.A. (VEP04203B)



A.V.R. & REEL SERVO C.B.A. (VEP01290A)



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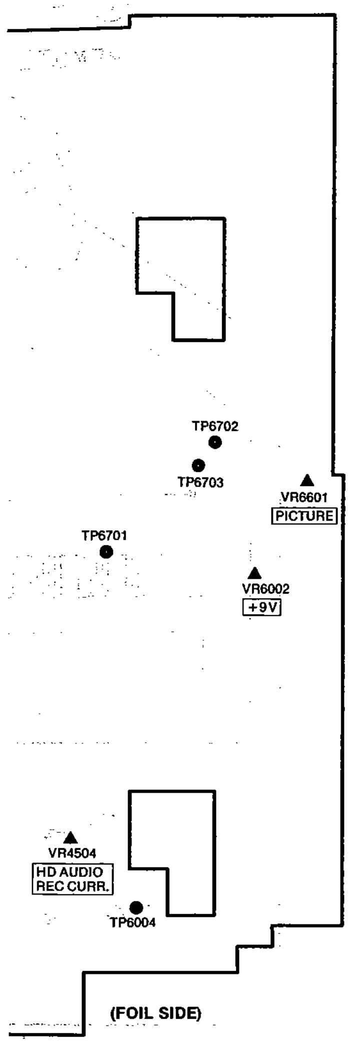
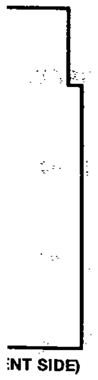
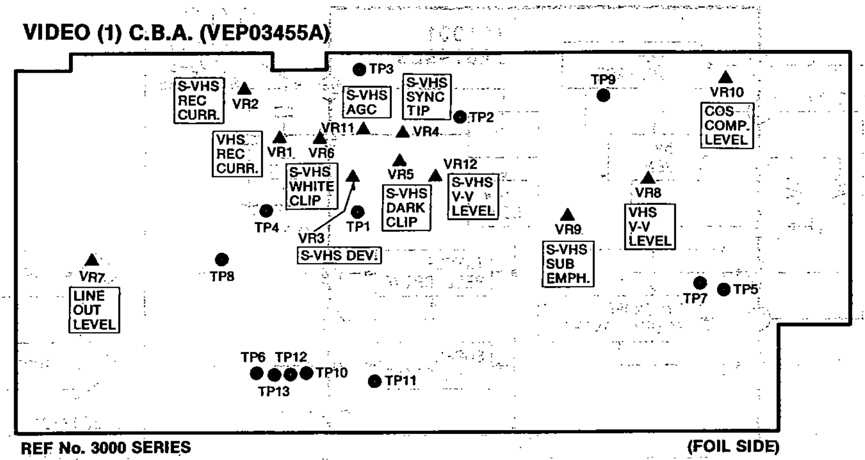
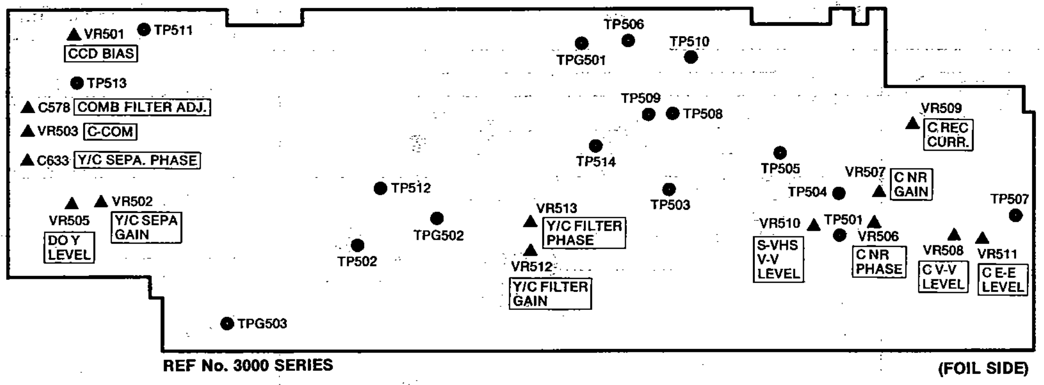




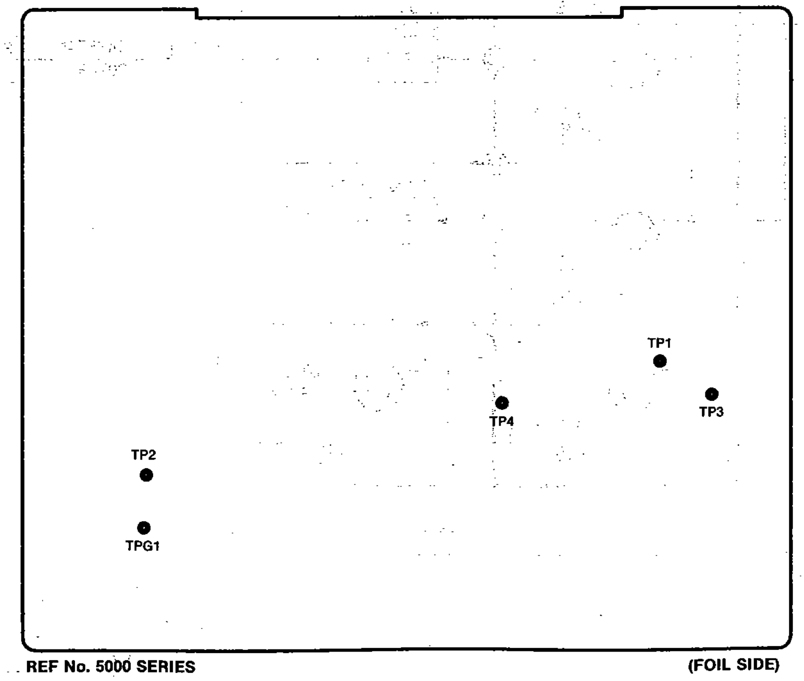
VIDEO (1) C.B.A. (VEP03455A)



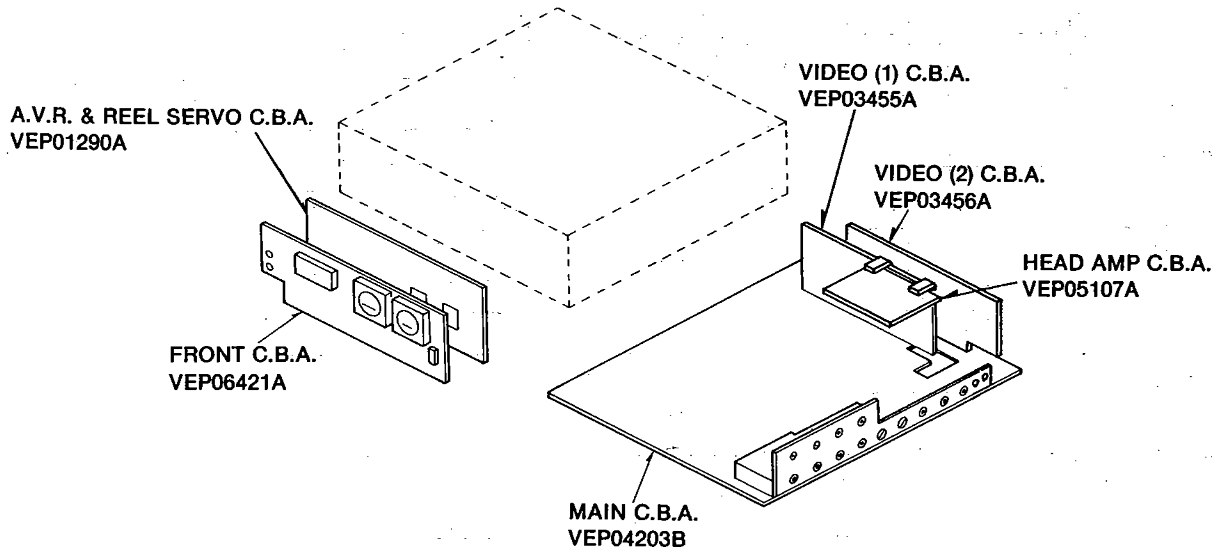
VIDEO (2) C.B.A. (VEP03456A)



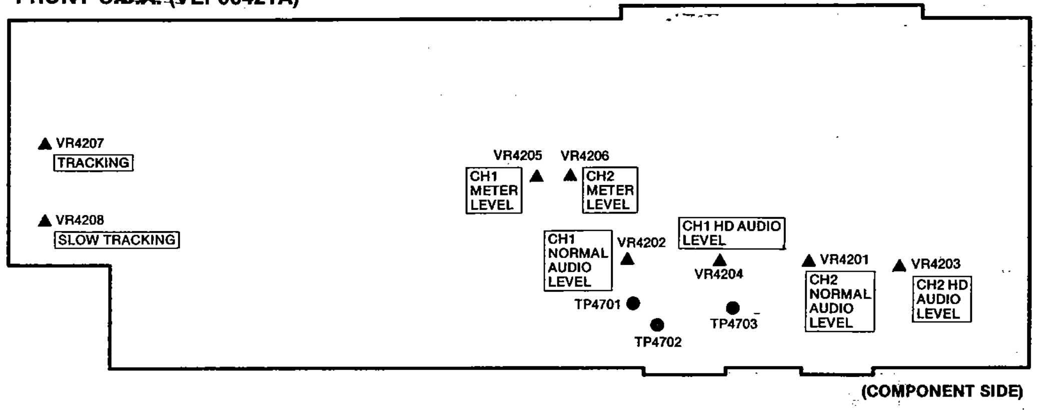
HEAD AMP C.B.A. (VEP05107A)



CIRCUIT BOARD LAYOUT

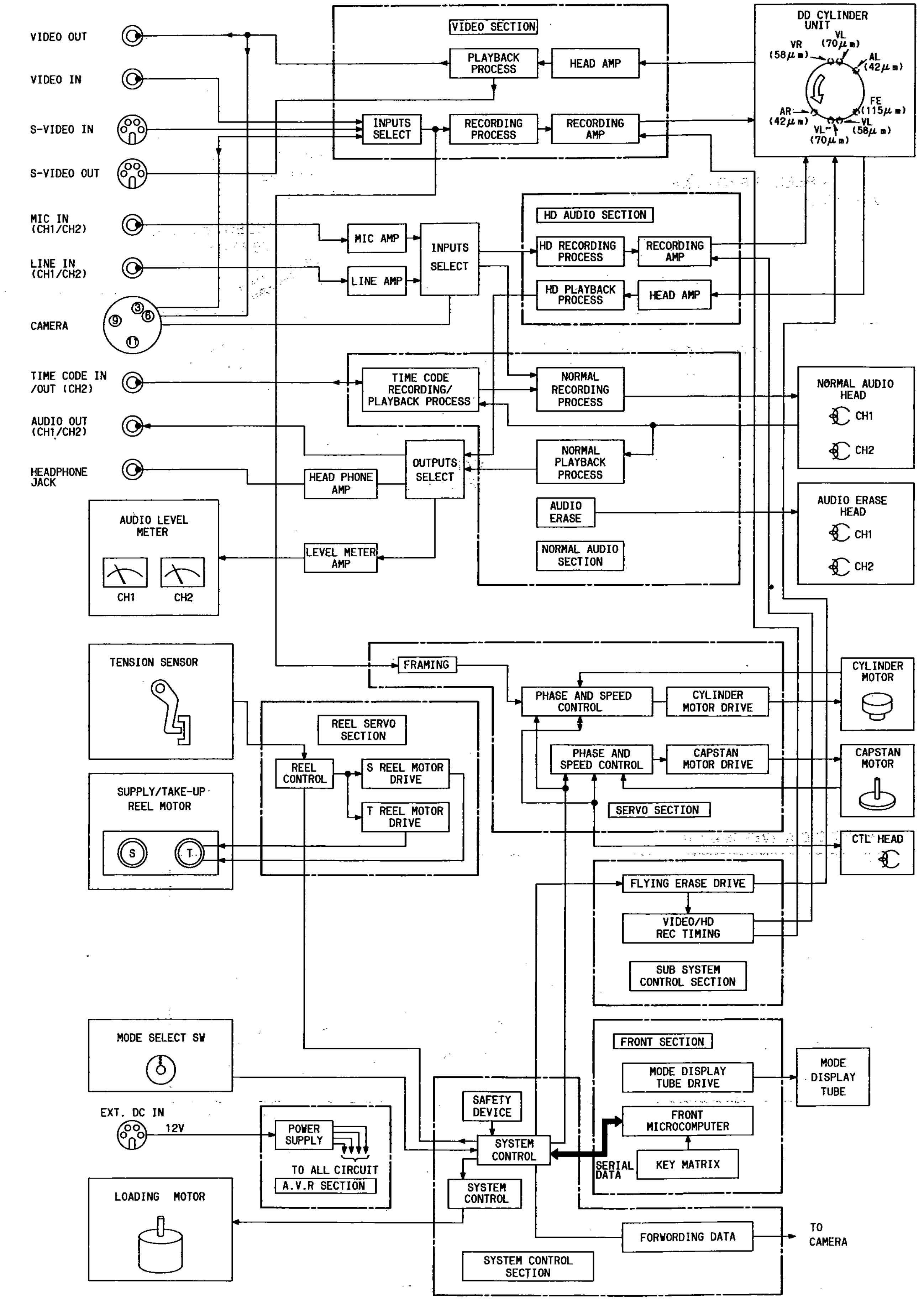


FRONT ~~C.B.A.~~ (VEP06421A)

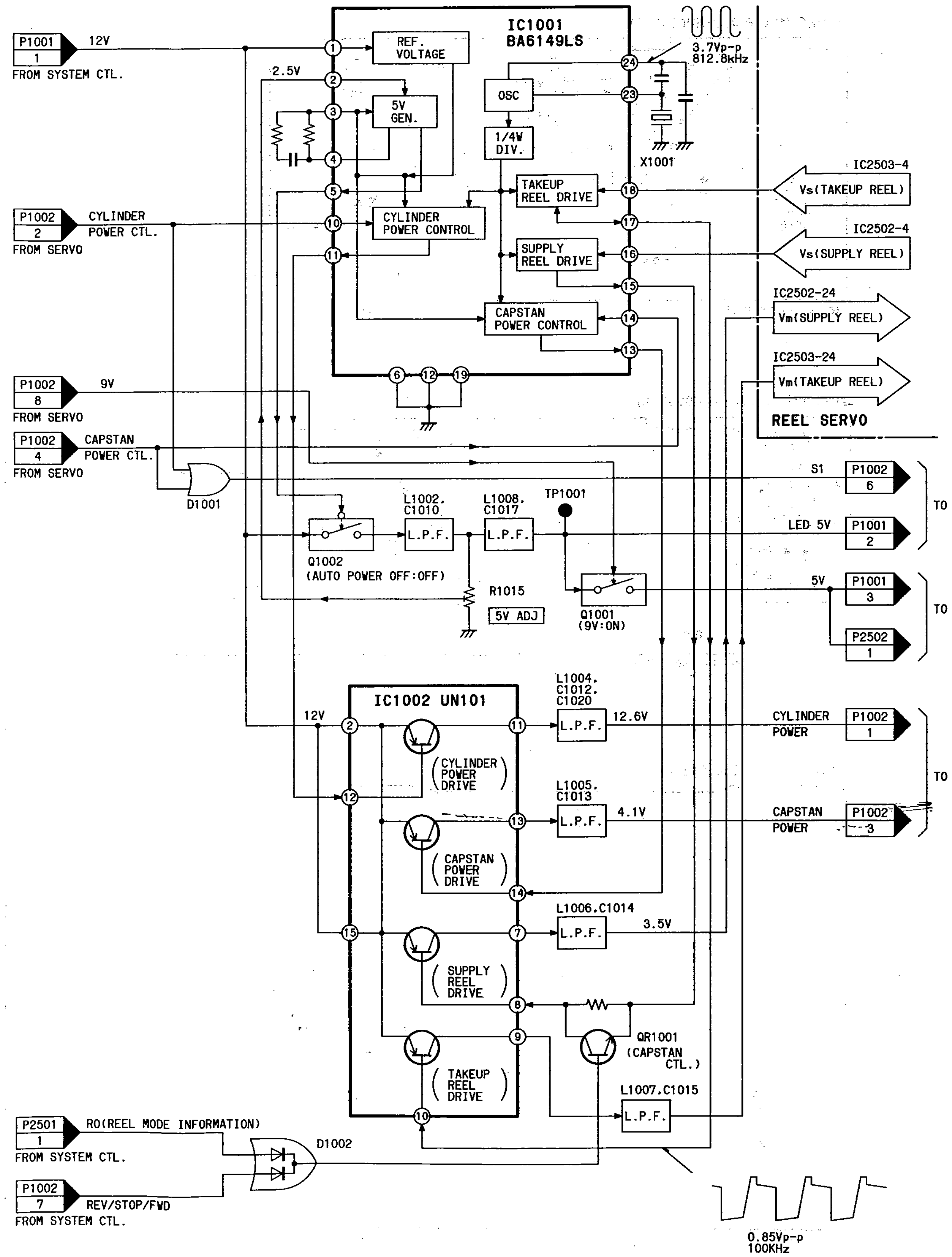


OVERALL BLOCK
A.V.R. BLOCK
FRONT (SYSTEM CTL.)
BLOCK

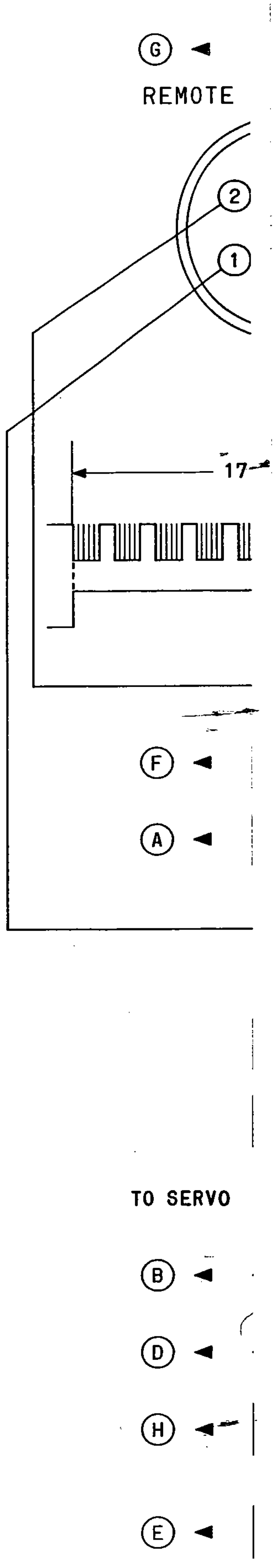
OVERALL BLOCK DIAGRAM



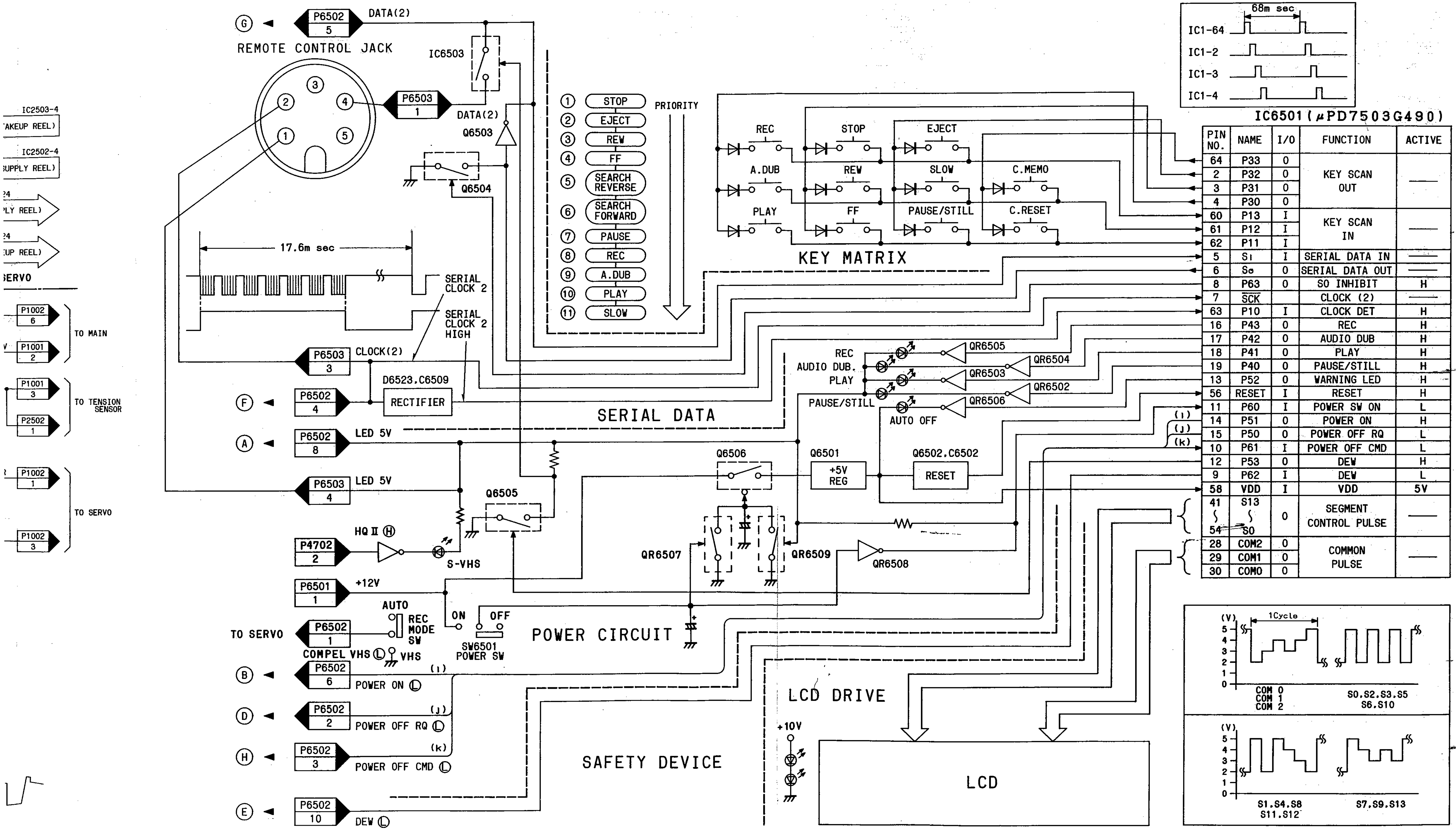
A.V.R. BLOCK DIAGRAM



FRONT (SYSTE



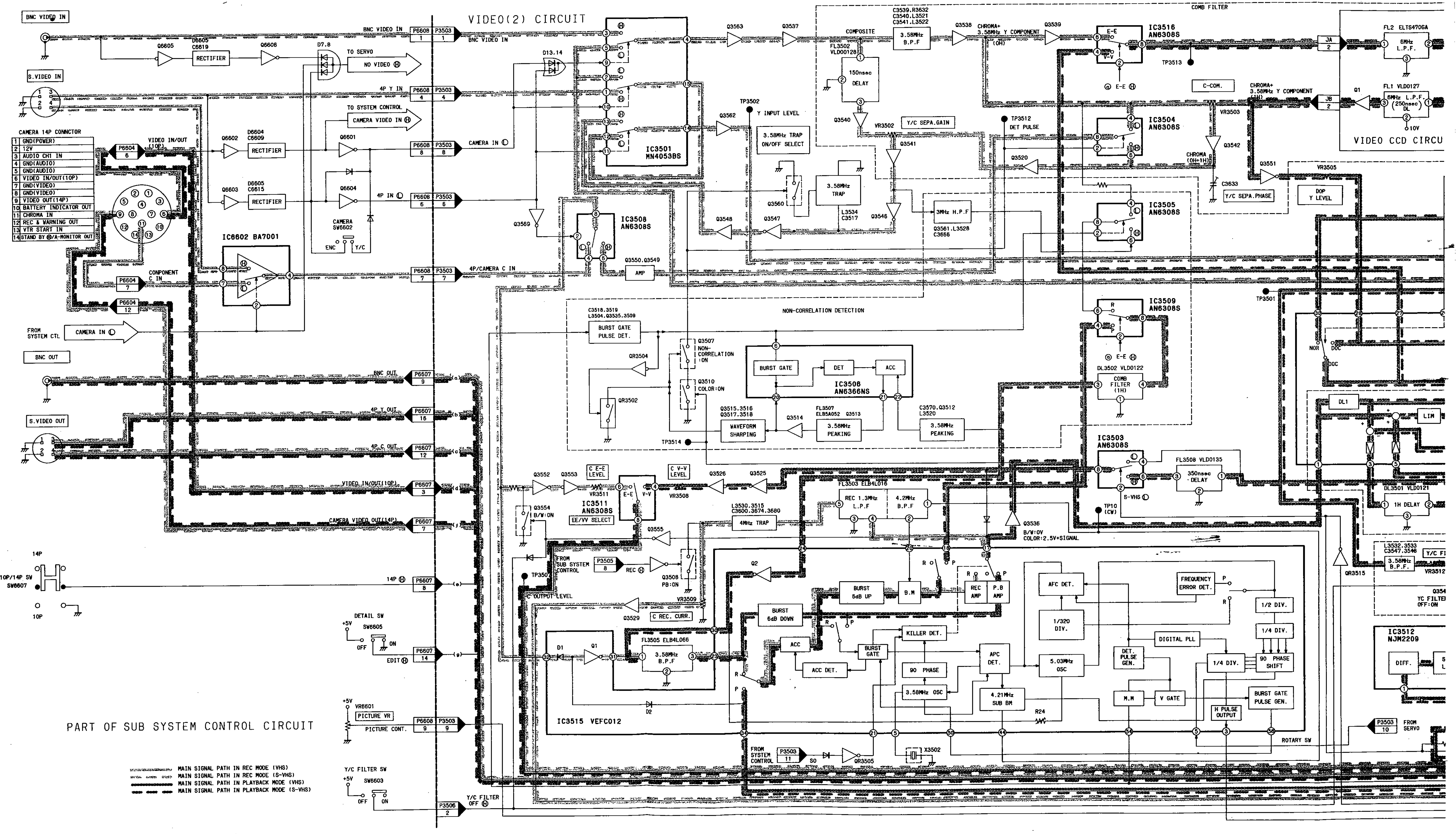
FRONT (SYSTEM CONTROL) BLOCK DIAGRAM

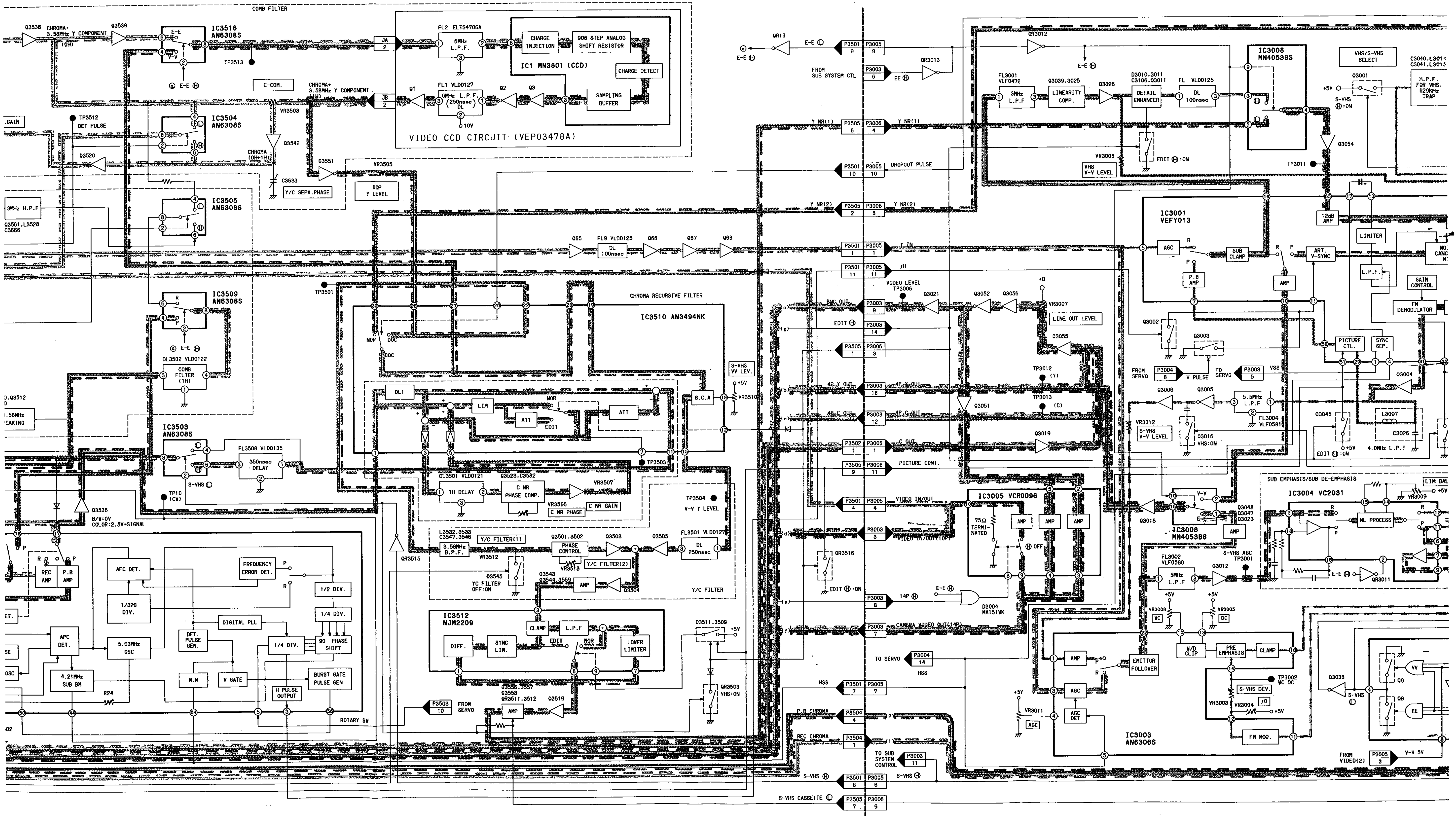


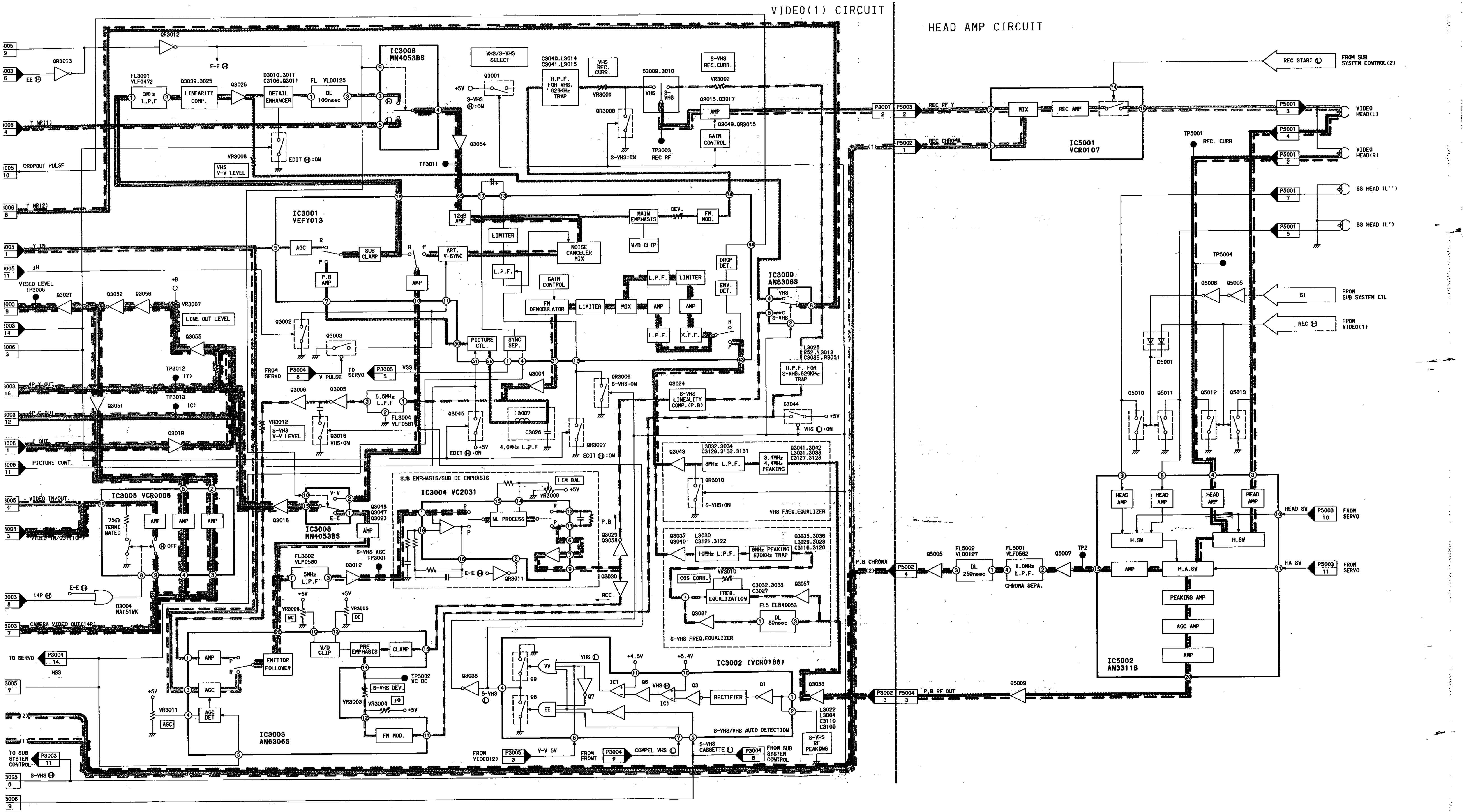
IC6501 (μPD7503G490)

PIN NO.	NAME	I/O	FUNCTION	ACTIVE
64	P33	O	KEY SCAN OUT	—
2	P32	O		
3	P31	O		
4	P30	O		
60	P13	I	KEY SCAN IN	—
61	P12	I		
62	P11	I		
5	SI	I	SERIAL DATA IN	—
6	SO	O	SERIAL DATA OUT	—
8	P63	O	SO INHIBIT	H
7	SCK		CLOCK (2)	—
63	P10	I	CLOCK DET	H
16	P43	O	REC	H
17	P42	O	AUDIO DUB	H
18	P41	O	PLAY	H
19	P40	O	PAUSE/STILL	H
13	P52	O	WARNING LED	H
56	RESET	I	RESET	H
11	P60	I	POWER SW ON	L
14	P51	O	POWER ON	H
15	P50	O	POWER OFF RQ	L
10	P61	I	POWER OFF CMD	L
12	P53	O	DEW	H
9	P62	I	DEW	L
58	VDD	I	VDD	5V
41 ∫ 54	S13 ∫ S0	O	SEGMENT CONTROL PULSE	—
28	COM2	O	COMMON PULSE	—
29	COM1	O		
30	COM0	O		

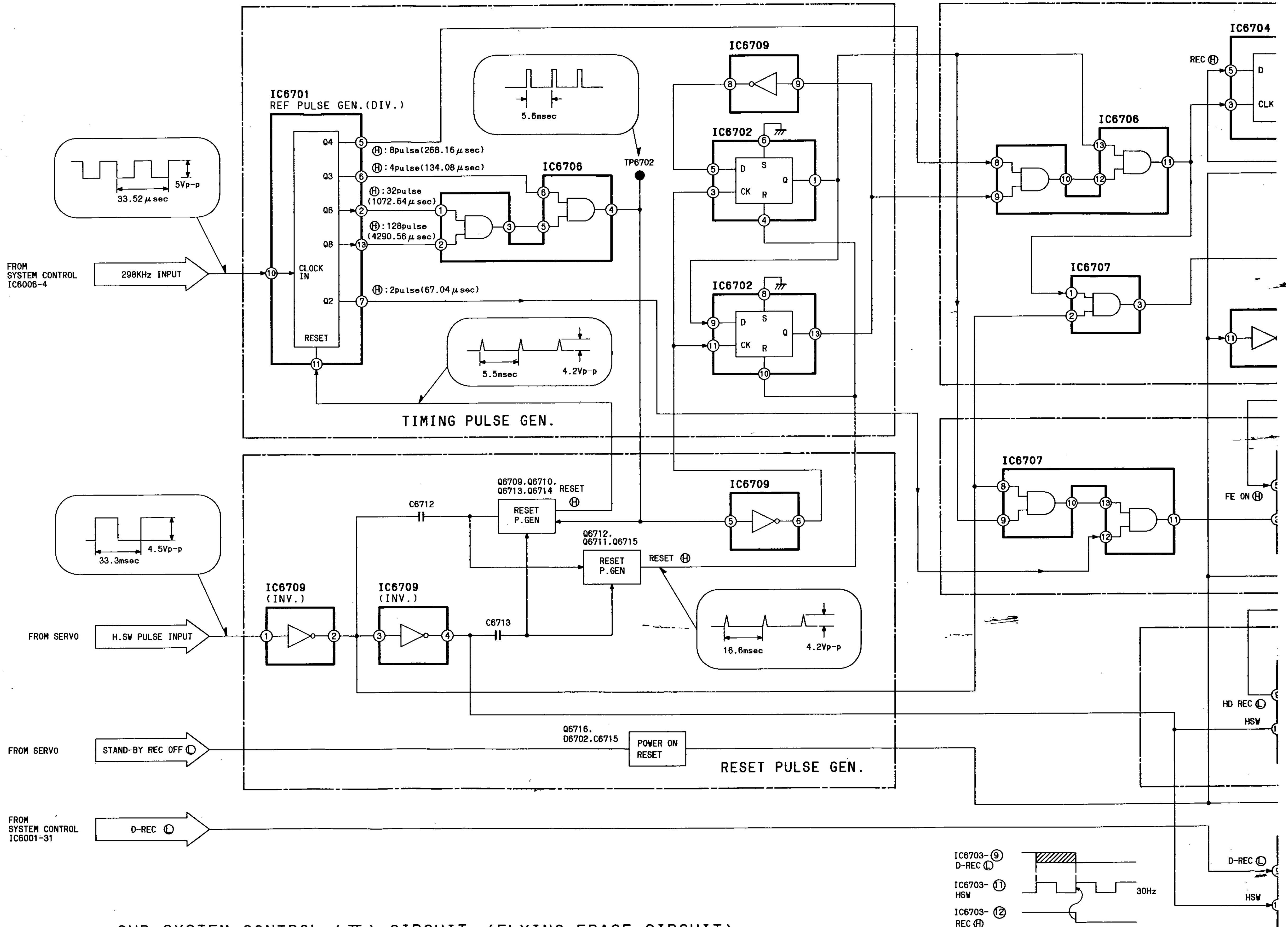
VIDEO BLOCK DIAGRAM



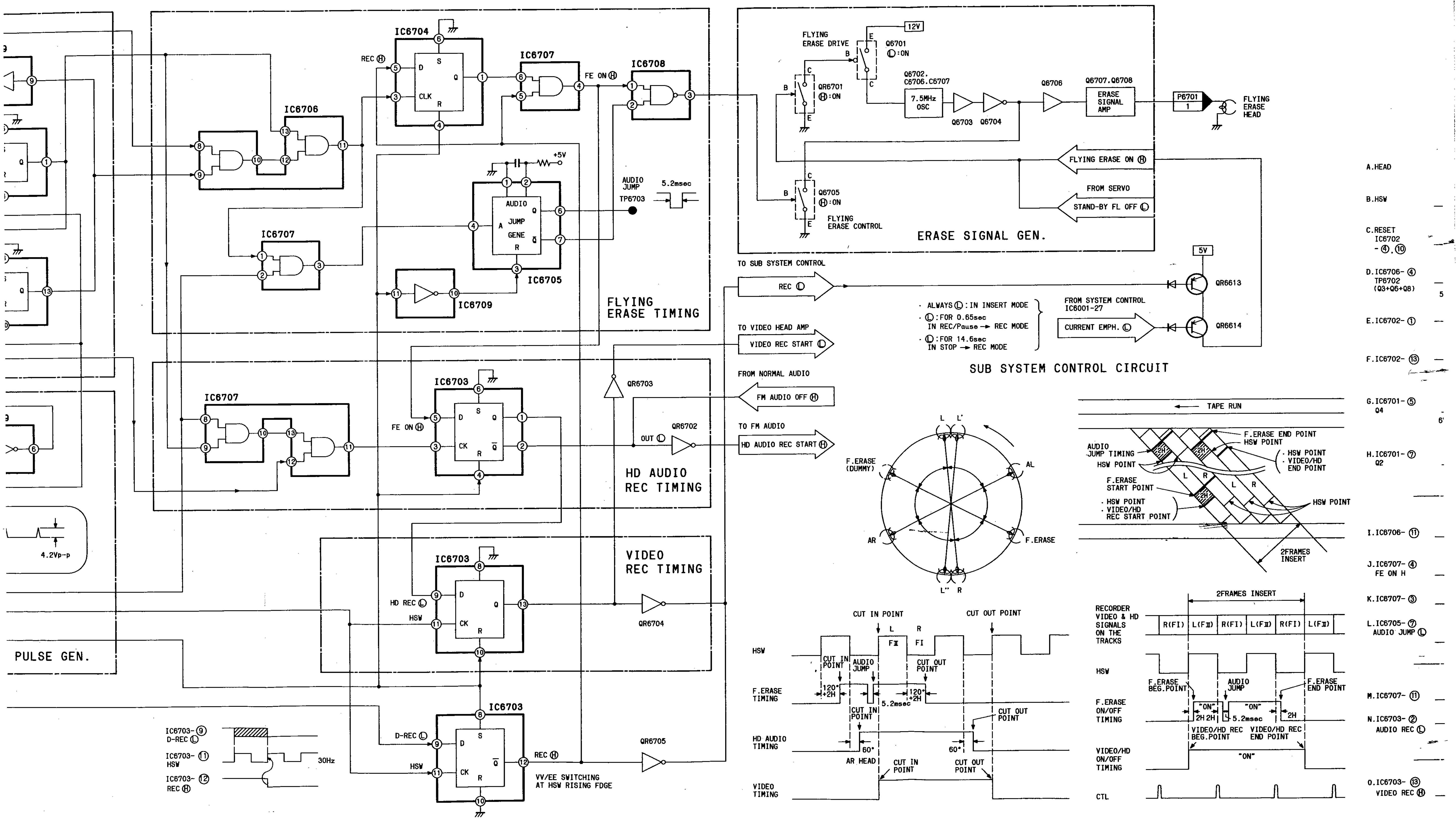

COMB FILTER
Q3538 CHROMA+ 3.58MHz Y COMPONENT (0H)
Q3539
IC3516 AN6308S
TP3513
E-E
V-V
C-COM.
CHROMA+ 3.58MHz Y COMPONENT (1H)
VR3503
JA 2
JB 2
FL2 ELTS470GA
6MHz L.P.F.
FL1 VLD0127
6MHz L.P.F. (250nsec) DL
10V
Q1
Q2
Q3
CHARGE INJECTION
906 STEP ANALOG SHIFT RESISTOR
IC1 MN3801 (CCD)
CHARGE DETECT
SAMPLING BUFFER
VIDEO CCD CIRCUIT (VEP03478A)
GAIN
TP3512
DET PULSE
IC3504 AN6308S
Q3520
Q3542
CHROMA (0H+1H)
C3533
Y/C SEPA.PHASE
Q3551
VR3505
DOP Y LEVEL
3MHz H.P.F
Q3561.L3528 C3666
IC3505 AN6308S
Q65
FL9 VLD0125
DL 100nsec
Q66
Q67
Q68
TP3501
IC3509 AN6308S
DL3502 VLD0122
COMB FILTER (1H)
CHROMA RECURSIVE FILTER
IC3510 AN3494NK
NOR
DOC
DL1
LIM
ATT
EDIT
G.C.A
S-VHS VV LEV.
VR3510
+5V
Q3512
1.58MHz PEAKING
IC3503 AN6308S
FL3508 VLD0135
350nsec DELAY
S-VHS
TP10 (CW)
Q3536
B/W:0V COLOR:2.5V+SIGNAL
DL3501 VLD0121
1H DELAY
Q3523.Q3582
C NR PHASE COMP.
VR3506
C NR PHASE
VR3507
C NR GAIN
TP3503
TP3504
V-V Y LEVEL
L3532.3533 C3547.3546
3.58MHz B.P.F.
Y/C FILTER(1)
VR3512
Q3545
YC FILTER OFF:ON
Q3501.3502
PHASE CONTROL
VR3513
Y/C FILTER(2)
Q3543 Q3544.3559
AMP
Q3503
Q3504
Q3505
FL3501 VLD0127
DL 250nsec
Y/C FILTER
QR3515
REC AMP
P.B AMP
AFC DET.
1/320 DIV.
FREQUENCY ERROR DET.
1/2 DIV.
1/4 DIV.
DIGITAL PLL
90 PHASE SHIFT
APC DET.
5.03MHz OSC
DET. PULSE GEN.
4.21MHz SUB BM
R24
M.M
V GATE
H PULSE OUTPUT
BURST GATE PULSE GEN.
ROTARY SW
IC3512 NJM2209
DIFF.
SYNC LIM.
CLAMP
L.P.F
LOWER LIMITER
Q3556.3557 Q3558 QR3511.3512
Q3519
P3503 10
FROM SERVO
Q3511.3509
QR3503 VHS:ON
QR19
E-E
P3501 9
P3005 9
FROM SUB SYSTEM CTL
P3003 6
EE
QR3013
QR3012
Y NR(1)
P3505 6
P3006 4
P3501 10
P3005 10
DROPOUT PULSE
Y NR(2)
P3505 2
P3006 8
P3501 1
P3005 1
Y IN
P3501 11
P3005 11
fH
VIDEO LEVEL TP3005
BNC OUT
P3003 9
EDIT
P3003 14
P3505 1
P3006 3
4P-Y OUT
P3003 16
4P-C OUT
P3003 12
C OUT
P3502 1
P3006 1
PICTURE CONT.
P3505 9
P3006 11
VIDEO IN/OUT
P3501 4
P3005 4
VIDEO IN/OUT(10P)
P3003 3
QR3516
EDIT :ON
14P
P3003 8
CAMERA VIDEO OUT(14P)
P3003 7
TO SERVO
P3004 14
HSS
P3501 7
P3005 7
P.B CHROMA
P3504 4
REC CHROMA
P3504 1
TO SUB SYSTEM CONTROL
P3003 11
S-VHS
P3501 6
P3005 6
S-VHS CASSETTE
P3505 7
P3006 9
Q3021
Q3052
Q3056
+B
VR3007
LINE OUT LEVEL
Q3055
TP3012 (Y)
TP3013 (C)
Q3051
Q3019
IC3005 VCR0096
75Ω TERMINATED
OFF
D3004 MA151WK
Q3018
FL3001 VLF0472
3MHz L.P.F
Q3039.3025
LINEARITY COMP.
Q3026
D3010.3011 C3106.Q3011
DETAIL ENHANCER
FL VLD0125
DL 100nsec
IC3008 MN4053BS
Q3054
TP3011
VR3008
VHS V-V LEVEL
EDIT :ON
IC3001 VEFY013
AGC
SUB CLAMP
P.B AMP
AMP
ART. V-SYNC
12dB AMP
LIMITER
L.P.F
GAIN CONTROL
FM DEMODULATOR
PICTURE CTL.
SYNC SEP.
Q3002
Q3003
FROM SERVO
P3004 8
V PULSE
TO SERVO
P3003 5
VSS
Q3004
Q3006
Q3005
5.5MHz L.P.F
FL3004 VLF0581
VR3012
S-VHS V-V LEVEL
Q3016
VHS:ON
Q3045
EDIT :ON
L3007
C3026
4.0MHz L.P.F
Q3048 Q3047 Q3023
S-VHS AGC TP3001
FL3002 VLF0580
5MHz L.P.F
Q3012
VR3006
VC
VR3005
DC
SUB EMPHASIS/SUB DE-EMPHASIS
IC3004 VC2031
NL PROCESS
VR3009
LIM BAL
QR3011
EMITTOR FOLLOWER
W/D CLIP
PRE EMPHASIS
CLAMP
TP3002 VC DC
S-VHS DEV.
VR3003
VR3004
f0
AGC DET
VR3011
IC3003 AN6306S
FM MOD.
Q3038
Q9
Q8
VV
EE
FROM VIDEO(2)
P3005 3
V-V 5V
VHS/S-VHS SELECT
Q3001
S-VHS :ON
C3040.L3014 C3041.L3015
H.P.F. FOR VHS. 629KHz TRAP

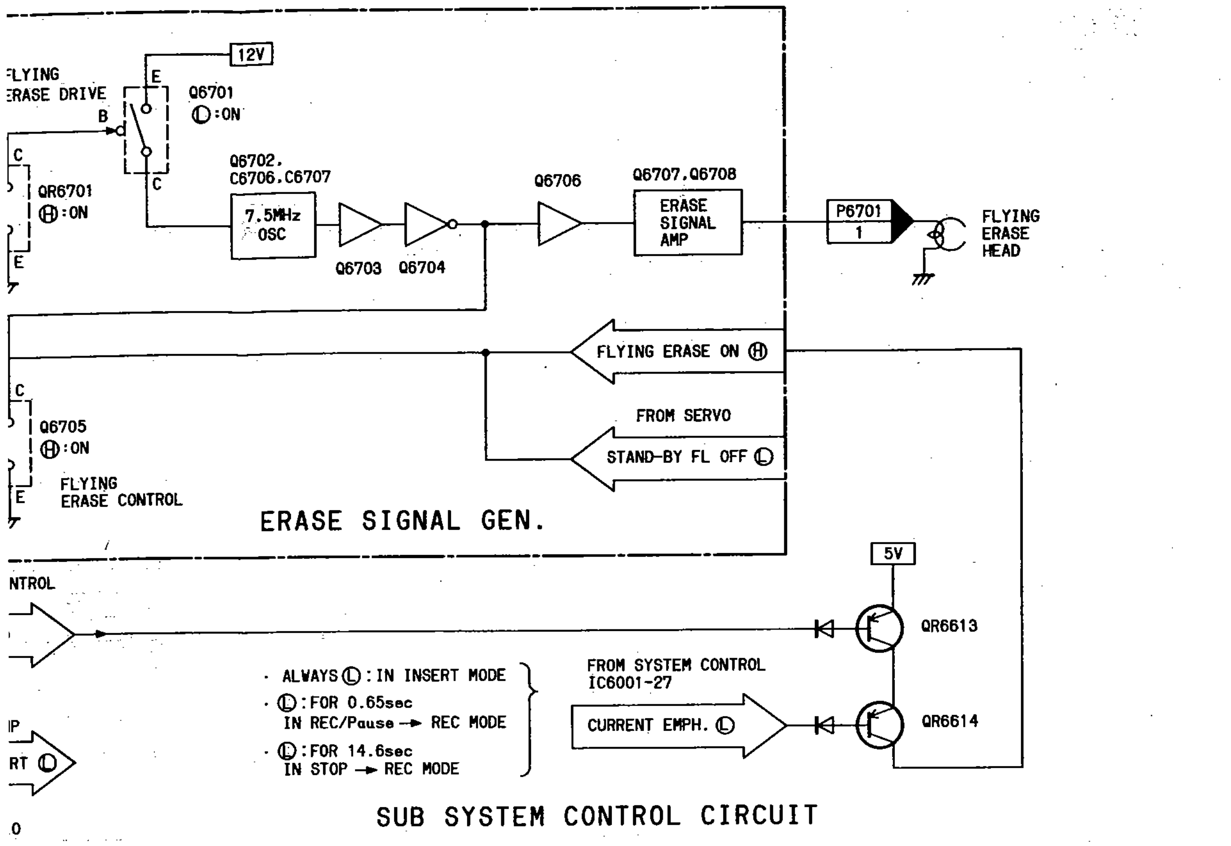

VIDEO(1) CIRCUIT
HEAD AMP CIRCUIT
IC3006 MN4053BS
IC3001 VEFY013
IC3009 AN8308S
IC3004 VC2031
IC3008 MN4053BS
IC3005 VCR0096
IC3003 AN6306S
IC3002 (VCR0188)
IC5001 VCR0107
IC5002 AN3311S
SUB EMPHASIS/SUB DE-EMPHASIS
VHS FREQ.EQUALIZER
S-VHS FREQ.EQUALIZER
S-VHS/VHS AUTO DETECTION
VHS/S-VHS SELECT
FL3001 VLF0472
3MHz L.P.F
LINEARITY COMP.
DETAIL ENHANCER
DL 100nsec
AGC
SUB CLAMP
P.B AMP
AMP
ART. V-SYNC
12dB AMP
LIMITER
L.P.F.
NOISE CANCELER MIX
MAIN EMPHASIS
W/D CLIP
FM MOD.
DEV.
DROP DET.
ENV. DET.
GAIN CONTROL
FM DEMODULATOR
MIX
H.P.F.
PICTURE CTL.
SYNC SEP.
H.P.F. FOR VHS. 629KHz TRAP
H.P.F. FOR S-VHS.629KHz TRAP
S-VHS LINEALITY COMP.(P.B)
8MHz L.P.F.
3.4MHz 4.4MHz PEAKING
10MHz L.P.F.
8MHz PEAKING 670KHz TRAP
COS CORR.
FREQ. EQUALIZATION
DL 80nsec
FL5 ELB4053
5.5MHz L.P.F
FL3004 VLF0581
4.0MHz L.P.F
L3007
C3026
NL PROCESS
LIM BAL
V-V
E-E
5MHz L.P.F
FL3002 VLF0580
W/D CLIP
PRE EMPHASIS
CLAMP
S-VHS DEV.
FM MOD.
EMITTOR FOLLOWER
AGC DET
RECTIFIER
S-VHS RF PEAKING
75Ω TERMI-NATED
LINE OUT LEVEL
VHS V-V LEVEL
S-VHS V-V LEVEL
VHS REC. CURR.
S-VHS REC.CURR.
EDIT ⊕:ON
S-VHS:ON
VHS:ON
VHS ⊖:ON
S-VHS ⊕:ON
E-E ⊕
EE ⊕
14P ⊕
D3004 MA151WK
Y NR(1)
Y NR(2)
DROPOUT PULSE
Y IN
fH
VIDEO LEVEL TP3006
4P Y OUT
4P C OUT
C OUT
PICTURE CONT.
VIDEO IN/OUT
VIDEO IN/OUT(10P)
CAMERA VIDEO OUT(14P)
TO SERVO
HSS
TO SUB SYSTEM CONTROL
S-VHS ⊕
FROM SERVO
V PULSE
VSS
FROM VIDEO(2)
V-V 5V
FROM FRONT
COMPEL VHS ⊖
S-VHS CASSETTE ⊖
FROM SUB SYSTEM CONTROL
P.B CHROMA
REC RF Y
REC CHROMA
P.B RF OUT
MIX
REC AMP
REC START ⊖
FROM SUB SYSTEM CONTROL(2)
VIDEO HEAD(L)
VIDEO HEAD(R)
SS HEAD (L'')
SS HEAD (L')
REC. CURR
TP5001
TP5004
S1
FROM SUB SYSTEM CTL
REC ⊕
FROM VIDEO(1)
D5001
HEAD AMP
H.SW
H.A.SW
PEAKING AMP
AGC AMP
HEAD SW
HA SW
FROM SERVO
FL5002 VLD0127
DL 250nsec
FL5001 VLF0582
1.0MHz L.P.F.
CHROMA SEPA.
TP2

SUB SYSTEM CONTROL BLOCK DIAGRAM

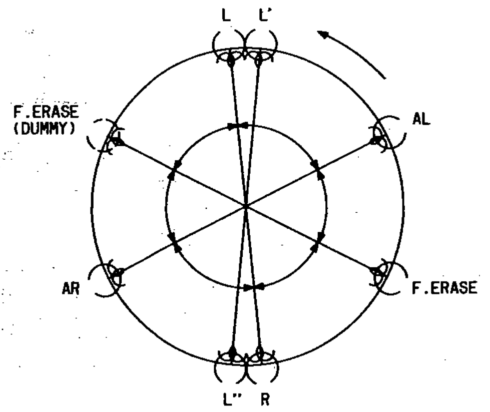


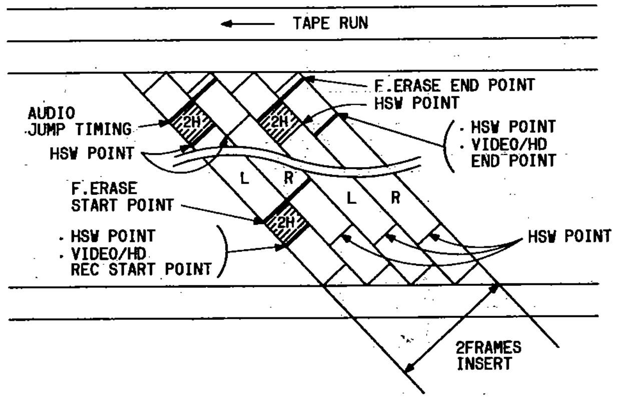
SUB SYSTEM CONTROL (Ⅱ) CIRCUIT (FLYING ERASE CIRCUIT)

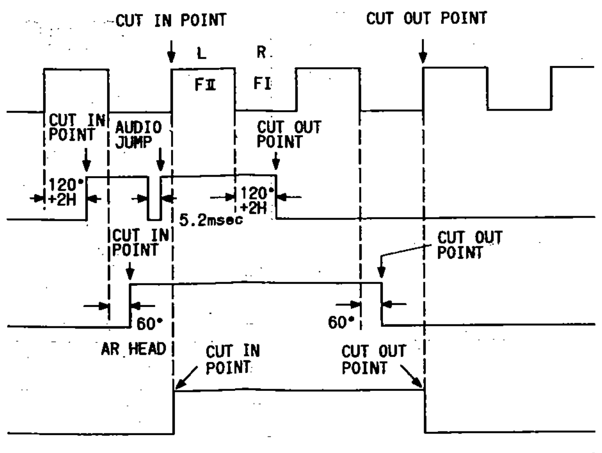

PULSE GEN.
4.2Vp-p
IC6704
IC6706
IC6707
IC6708
IC6705
IC6709
IC6703
REC Ⓗ
FE ON Ⓗ
AUDIO JUMP GENE
+5V
AUDIO JUMP TP6703
5.2msec
FLYING ERASE TIMING
HD AUDIO REC TIMING
VIDEO REC TIMING
QR6703
QR6702
OUT Ⓛ
QR6704
QR6705
HD REC Ⓛ
HSW
D-REC Ⓛ
VV/EE SWITCHING AT HSW RISING FDGE
IC6703-⑨ D-REC Ⓛ
IC6703-⑪ HSW
IC6703-⑫ REC Ⓗ
30Hz
FLYING ERASE DRIVE
12V
Q6701 Ⓛ:ON
QR6701 Ⓗ:ON
Q6702. C6706.C6707
7.5MHz OSC
Q6703
Q6704
Q6706
Q6707.Q6708
ERASE SIGNAL AMP
P6701 1
FLYING ERASE HEAD
Q6705 Ⓗ:ON
FLYING ERASE CONTROL
FLYING ERASE ON Ⓗ
FROM SERVO
STAND-BY FL OFF Ⓛ
ERASE SIGNAL GEN.
TO SUB SYSTEM CONTROL
REC Ⓛ
5V
QR6613
QR6614
· ALWAYS Ⓛ : IN INSERT MODE
· Ⓛ : FOR 0.65sec IN REC/Pause → REC MODE
· Ⓛ : FOR 14.6sec IN STOP → REC MODE
FROM SYSTEM CONTROL IC6001-27
CURRENT EMPH. Ⓛ
SUB SYSTEM CONTROL CIRCUIT
TO VIDEO HEAD AMP
VIDEO REC START Ⓛ
FROM NORMAL AUDIO
FM AUDIO OFF Ⓗ
TO FM AUDIO
HD AUDIO REC START Ⓗ
L L'
AL
F.ERASE (DUMMY)
AR
F.ERASE
L'' R
TAPE RUN
F.ERASE END POINT HSW POINT
AUDIO JUMP TIMING HSW POINT
· HSW POINT · VIDEO/HD END POINT
F.ERASE START POINT
· HSW POINT · VIDEO/HD REC START POINT
HSW POINT
2FRAMES INSERT
2H
CUT IN POINT
CUT OUT POINT
HSW
F.ERASE TIMING
HD AUDIO TIMING
VIDEO TIMING
FII
FI
AUDIO JUMP
120° +2H
5.2msec
60°
AR HEAD
RECORDER VIDEO & HD SIGNALS ON THE TRACKS
R(FI) L(FII) R(FI) L(FII) R(FI) L(FII)
F.ERASE BEG.POINT
F.ERASE END POINT
F.ERASE ON/OFF TIMING
"ON"
2H 2H
VIDEO/HD REC BEG.POINT
VIDEO/HD REC END POINT
VIDEO/HD ON/OFF TIMING
CTL
A.HEAD
B.HSW
C.RESET IC6702 -④.⑩
D.IC6706-④ TP6702 (Q3+Q6+Q8)
E.IC6702-①
F.IC6702-⑬
G.IC6701-⑤ Q4
H.IC6701-⑦ Q2
I.IC6706-⑪
J.IC6707-④ FE ON H
K.IC6707-③
L.IC6705-⑦ AUDIO JUMP Ⓛ
M.IC6707-⑪
N.IC6703-② AUDIO REC Ⓛ
O.IC6703-⑬ VIDEO REC Ⓗ

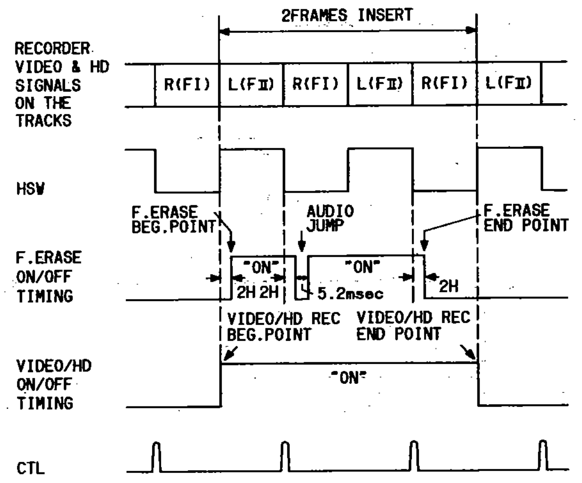


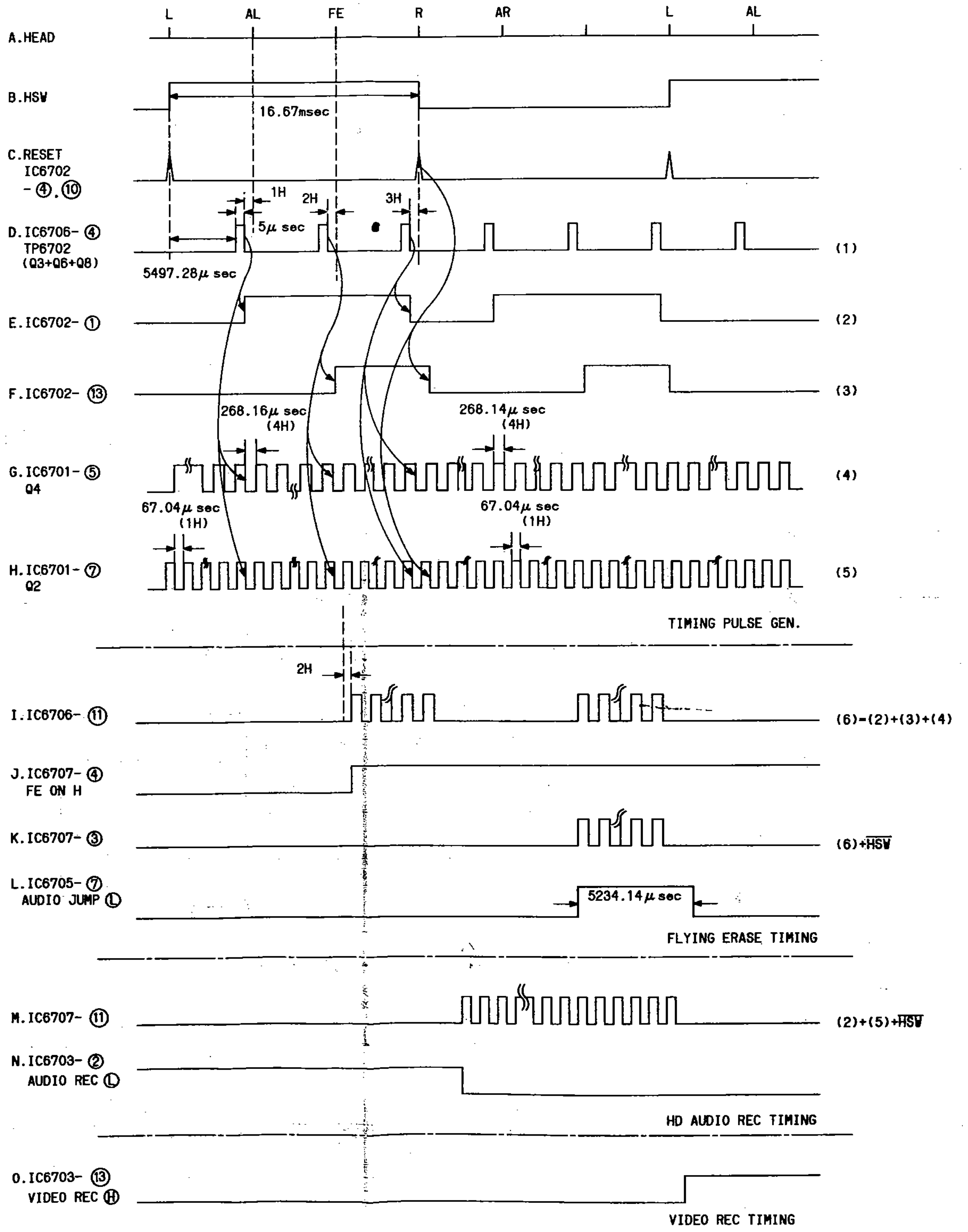
SUB SYSTEM CONTROL CIRCUIT



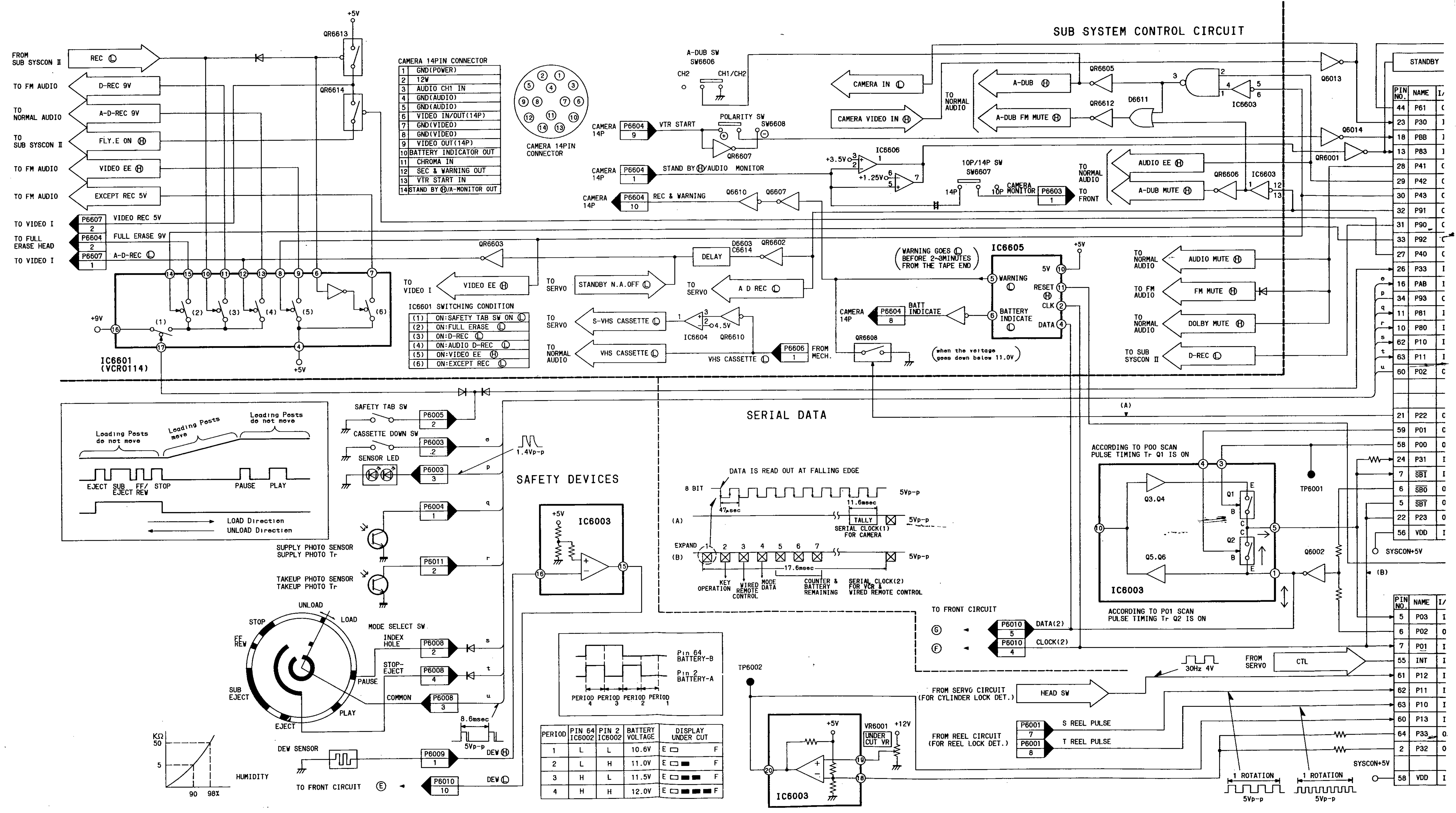








SYSTEM CONTROL BLOCK DIAGRAM



	CAMERA 14PIN CONNECTOR
1	GND(POWER)
2	12V
3	AUDIO CH1 IN
4	GND(AUDIO)
5	GND(AUDIO)
6	VIDEO IN/OUT(14P)
7	GND(VIDEO)
8	GND(VIDEO)
9	VIDEO OUT(14P)
10	BATTERY INDICATOR OUT
11	CHROMA IN
12	SEC & WARNING OUT
13	VTR START IN
14	STAND BY Ⓗ/A-MONITOR OUT

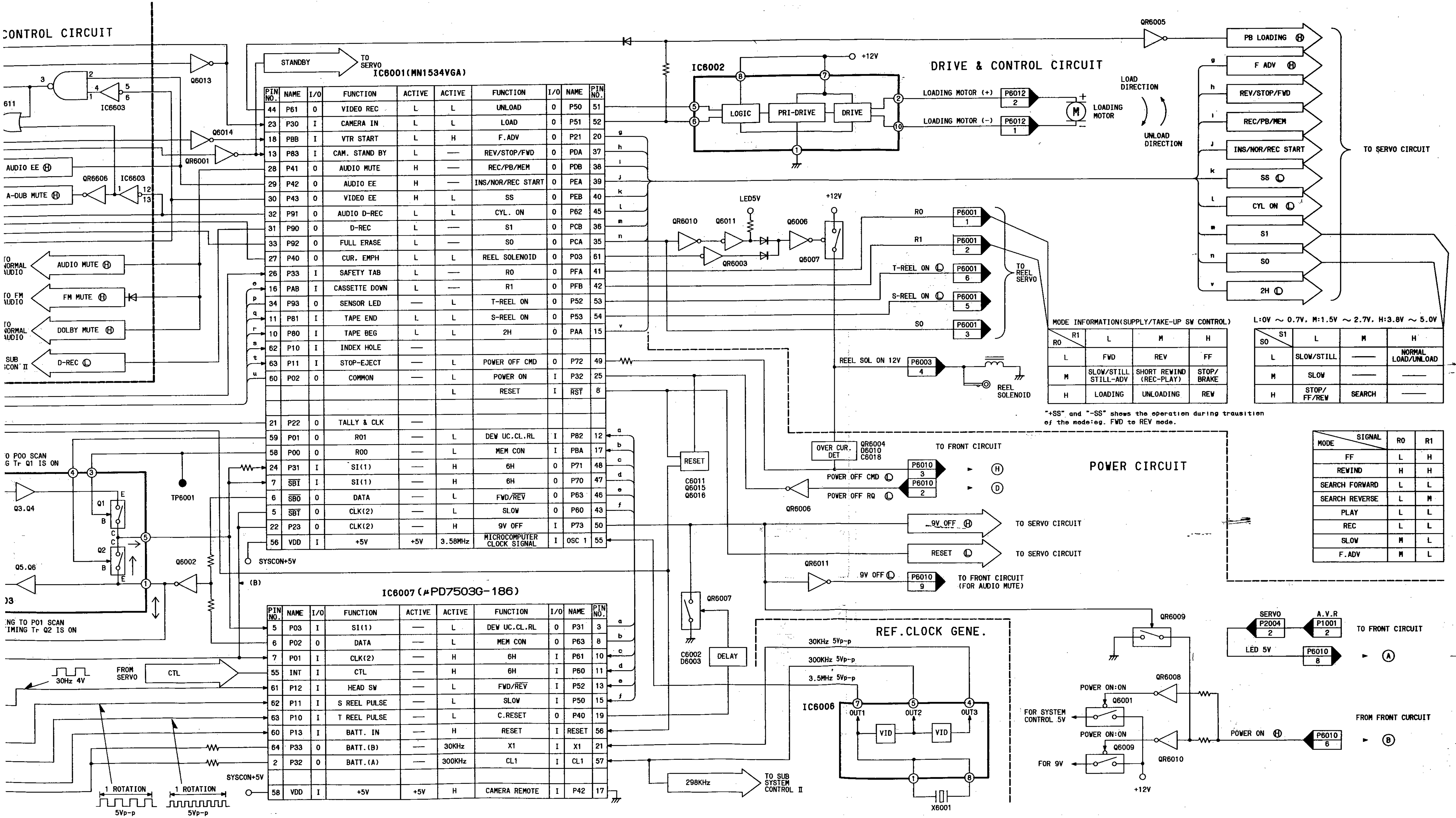
IC6601 SWITCHING CONDITION

(1)	ON:SAFETY TAB SW ON Ⓛ
(2)	ON:FULL ERASE Ⓛ
(3)	ON:D-REC Ⓛ
(4)	ON:AUDIO D-REC Ⓛ
(5)	ON:VIDEO EE Ⓗ
(6)	ON:EXCEPT REC Ⓛ

PERIOD	PIN 64 IC6002	PIN 2 IC6002	BATTERY VOLTAGE	DISPLAY UNDER CUT
1	L	L	10.6V	E ▭ F
2	L	H	11.0V	E ▭■ F
3	H	L	11.5V	E ▭■■ F
4	H	H	12.0V	E ▭■■■ F

PIN NO.	NAME	I/
	STANDBY	
44	P61	
23	P30	
18	PBB	
13	P83	
28	P41	
29	P42	
30	P43	
32	P91	
31	P90	
33	P92	
27	P40	
26	P33	
16	PAB	
34	P93	
11	P81	
10	P80	
62	P10	
63	P11	
60	P02	
21	P22	
59	P01	
58	P00	
24	P31	
7	SBI	
6	SBO	
5	SBT	
22	P23	
56	VDD	

PIN NO.	NAME	I/
5	P03	
6	P02	
7	P01	
55	INT	
61	P12	
62	P11	
63	P10	
60	P13	
64	P33	
2	P32	
58	VDD	



IC6001(MN1534VGA)

PIN NO.	NAME	I/O	FUNCTION	ACTIVE	ACTIVE	FUNCTION	I/O	NAME	PIN NO.
44	P61	0	VIDEO REC	L	L	UNLOAD	0	P50	51
23	P30	I	CAMERA IN	L	L	LOAD	0	P51	52
18	PBB	I	VTR START	L	H	F.ADV	0	P21	20
13	P83	I	CAM. STAND BY	L	—	REV/STOP/FWD	0	PDA	37
28	P41	0	AUDIO MUTE	H	—	REC/PB/MEM	0	PDB	38
29	P42	0	AUDIO EE	H	—	INS/NOR/REC START	0	PEA	39
30	P43	0	VIDEO EE	H	L	SS	0	PEB	40
32	P91	0	AUDIO D-REC	L	L	CYL. ON	0	P62	45
31	P90	0	D-REC	L	—	S1	0	PCB	36
33	P92	0	FULL ERASE	L	—	S0	0	PCA	35
27	P40	0	CUR. EMPH	L	L	REEL SOLENOID	0	P03	61
26	P33	I	SAFETY TAB	L	—	R0	0	PFA	41
16	PAB	I	CASSETTE DOWN	L	—	R1	0	PFB	42
34	P93	0	SENSOR LED	—	L	T-REEL ON	0	P52	53
11	P81	I	TAPE END	L	L	S-REEL ON	0	P53	54
10	P80	I	TAPE BEG	L	L	2H	0	PAA	15
62	P10	I	INDEX HOLE	—					
63	P11	I	STOP-EJECT	—	L	POWER OFF CMD	0	P72	49
60	P02	0	COMMON	—	L	POWER ON	I	P32	25
					L	RESET	I	$\overline{RST}$	8
21	P22	0	TALLY & CLK	—					
59	P01	0	R01	—	L	DEW UC.CL.RL	I	P82	12
58	P00	0	R00	—	L	MEM CON	I	PBA	17
24	P31	I	SI(1)	—	H	6H	0	P71	48
7	$\overline{SBI}$	I	SI(1)	—	H	6H	0	P70	47
6	$\overline{SB0}$	0	DATA	—	L	FWD/$\overline{REV}$	0	P63	46
5	$\overline{SBT}$	0	CLK(2)	—	L	SLOW	0	P60	43
22	P23	0	CLK(2)	—	H	9V OFF	I	P73	50
56	VDD	I	+5V	+5V	3.58MHz	MICROCOMPUTER CLOCK SIGNAL	I	OSC 1	55

IC6007(μPD7503G-186)

PIN NO.	NAME	I/O	FUNCTION	ACTIVE	ACTIVE	FUNCTION	I/O	NAME	PIN NO.
5	P03	I	SI(1)	—	L	DEW UC.CL.RL	0	P31	3
6	P02	0	DATA	—	L	MEM CON	0	P63	8
7	P01	I	CLK(2)	—	H	6H	I	P61	10
55	INT	I	CTL	—	H	6H	I	P60	11
61	P12	I	HEAD SW	—	L	FWD/$\overline{REV}$	I	P52	13
62	P11	I	S REEL PULSE	—	L	SLOW	I	P50	15
63	P10	I	T REEL PULSE	—	L	C.RESET	0	P40	19
60	P13	I	BATT. IN	—	H	RESET	I	RESET	56
64	P33	0	BATT.(B)	—	30KHz	X1	I	X1	21
2	P32	0	BATT.(A)	—	300KHz	CL1	I	CL1	57
58	VDD	I	+5V	+5V	H	CAMERA REMOTE	I	P42	17

MODE INFORMATION(SUPPLY/TAKE-UP SW CONTROL)

R0 \ R1	L	M	H
L	FWD	REV	FF
M	SLOW/STILL STILL-ADV	SHORT REWIND (REC-PLAY)	STOP/ BRAKE
H	LOADING	UNLOADING	REW

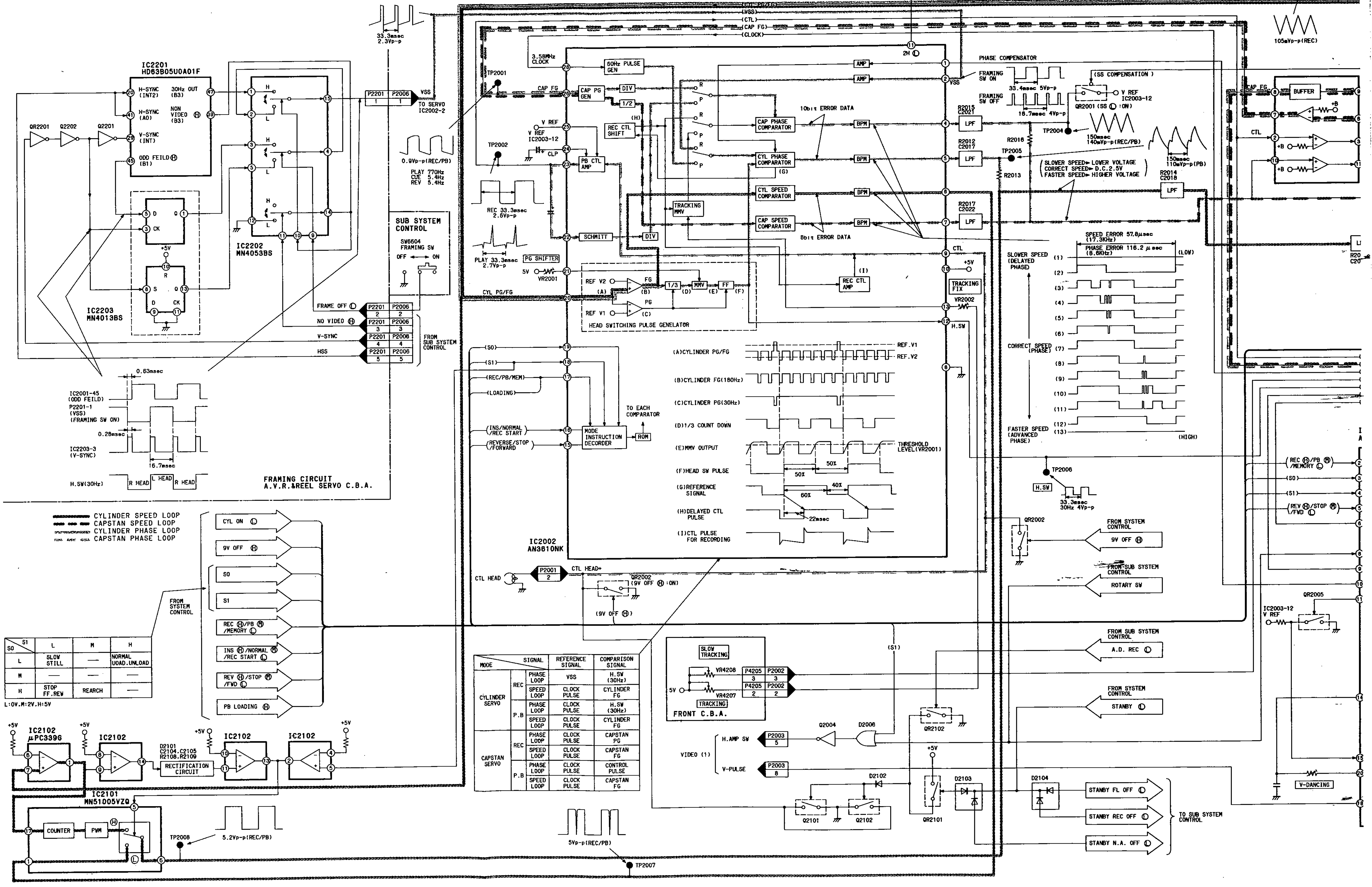
"+SS" and "-SS" shows the operation during trausition of the mode:eg. FWD to REV mode.

L:0V ~ 0.7V, M:1.5V ~ 2.7V, H:3.8V ~ 5.0V

S0 \ S1	L	M	H
L	SLOW/STILL	—	NORMAL LOAD/UNLOAD
M	SLOW	—	—
H	STOP/ FF/REW	SEARCH	—

MODE \ SIGNAL	R0	R1
FF	L	H
REWIND	H	H
SEARCH FORWARD	L	L
SEARCH REVERSE	L	M
PLAY	L	L
REC	L	L
SLOW	M	L
F.ADV	M	L

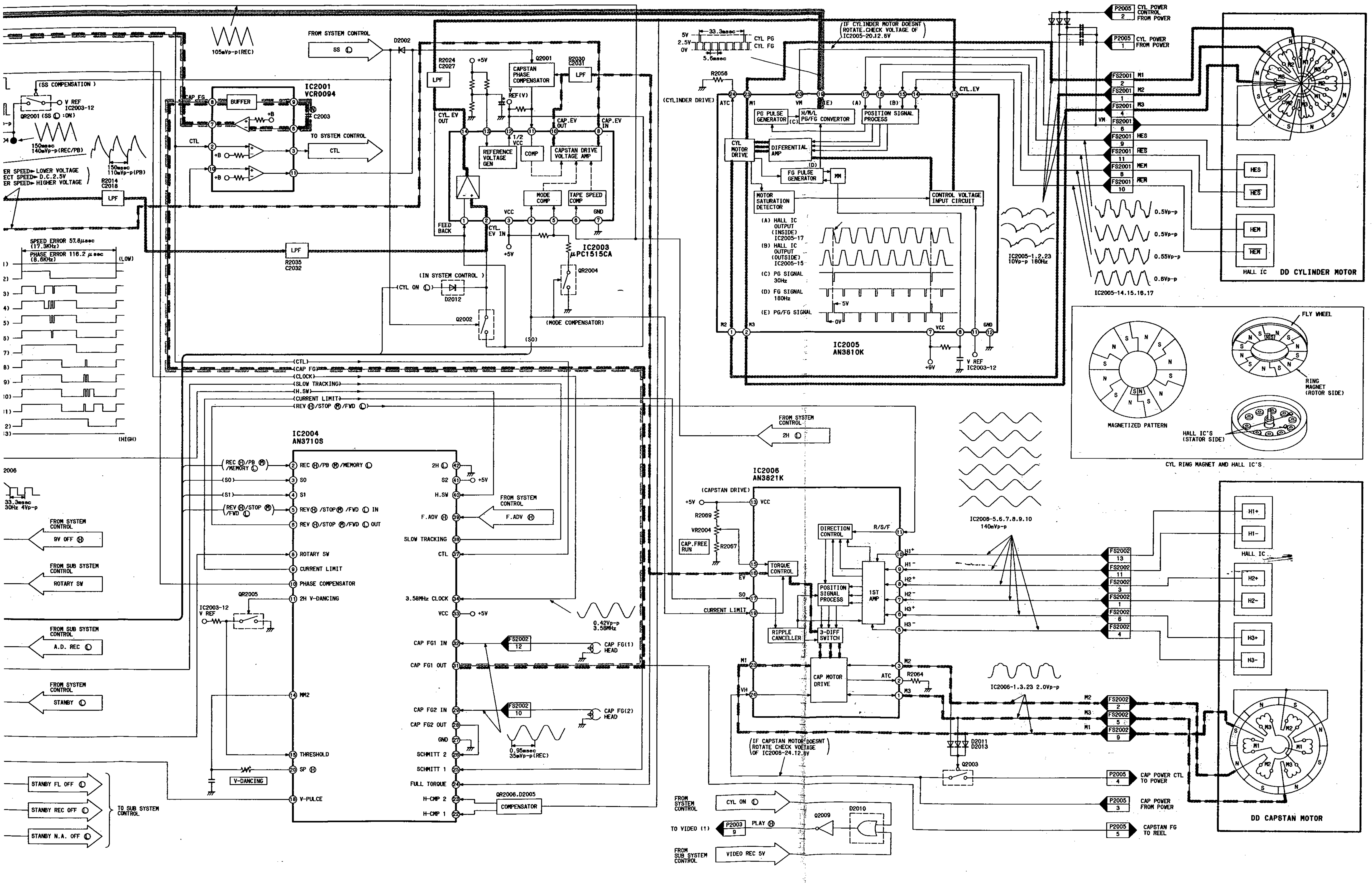
SERVO BLOCK DIAGRAM



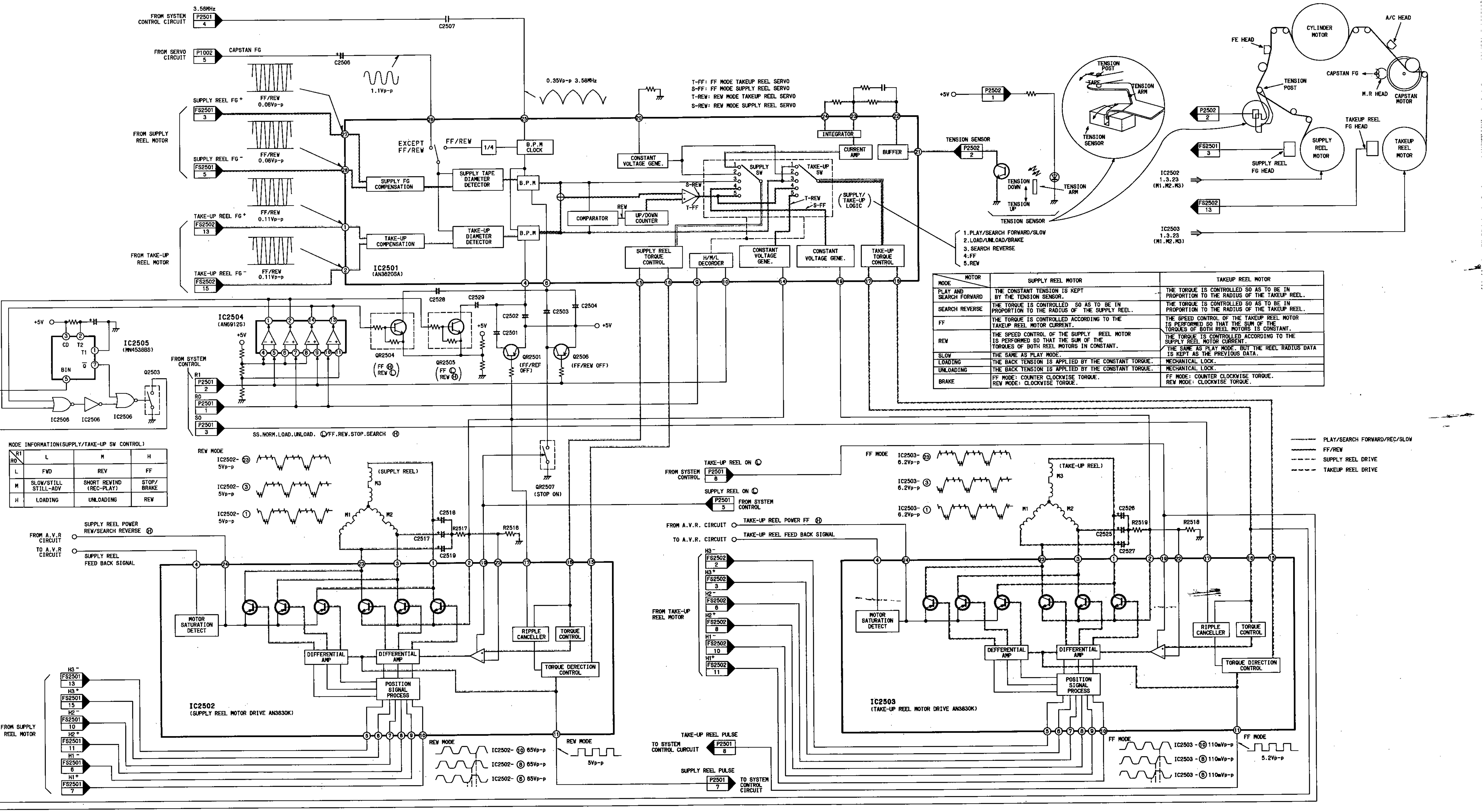
S0 \ S1	L	M	H
L	SLOW STILL	—	NORMAL UOAD.UNLOAD
M	—	—	—
H	STOP FF.REW	REARCH	—

L:0V.M:2V.H:5V

MODE \ SIGNAL			REFERENCE SIGNAL	COMPARISON SIGNAL
CYLINDER SERVO	REC	PHASE LOOP	VSS	H.SW (30Hz)
		SPEED LOOP	CLOCK PULSE	CYLINDER FG
	P.B	PHASE LOOP	CLOCK PULSE	H.SW (30Hz)
		SPEED LOOP	CLOCK PULSE	CYLINDER FG
CAPSTAN SERVO	REC	PHASE LOOP	CLOCK PULSE	CAPSTAN PG
		SPEED LOOP	CLOCK PULSE	CAPSTAN FG
	P.B	PHASE LOOP	CLOCK PULSE	CONTROL PULSE
		SPEED LOOP	CLOCK PULSE	CAPSTAN FG


IC2001
VCR0094
BUFFER
C2003
TO SYSTEM CONTROL
CTL
(SS COMPENSATION)
V REF
IC2003-12
QR2001 (SS Ⓛ :ON)
150msec
140mVp-p(REC/PB)
150msec
110mVp-p(PB)
R2014
C2018
LPF
ER SPEED→ LOWER VOLTAGE
ECT SPEED→ D.C.2.5V
ER SPEED→ HIGHER VOLTAGE
105mVp-p(REC)
FROM SYSTEM CONTROL
SS Ⓛ
D2002
R2024
C2027
CAPSTAN PHASE COMPENSATOR
Q2001
R2030
C2031
REF(V)
CYL.EV OUT
CAP.EV OUT
CAP.EV IN
REFERENCE VOLTAGE GEN
COMP
CAPSTAN DRIVE VOLTAGE AMP
1/2 VCC
MODE COMP
TAPE SPEED COMP
VCC
GND
FEED BACK
CYL. EV IN
+5V
IC2003
μPC1515CA
QR2004
(IN SYSTEM CONTROL)
CYL ON Ⓛ
D2012
Q2002
(MODE COMPENSATOR)
(SO)
LPF
R2035
C2032
SPEED ERROR 57.8μsec (17.3KHz)
PHASE ERROR 116.2 μsec (8.6KHz)
(LOW)
(HIGH)
2006
33.3msec
30Hz 4Vp-p
(CTL)
(CAP FG)
(CLOCK)
(SLOW TRACKING)
(H.SW)
(CURRENT LIMIT)
(REV Ⓗ/STOP Ⓗ/FWD Ⓛ)
IC2004
AN3710S
(REC Ⓗ/PB Ⓗ/MEMORY Ⓛ)
(SO)
(S1)
(REV Ⓗ/STOP Ⓗ/FWD Ⓛ)
REC Ⓗ/PB Ⓗ/MEMORY Ⓛ
SO
S1
REV Ⓗ/STOP Ⓗ/FWD Ⓛ IN
REV Ⓗ/STOP Ⓗ/FWD Ⓛ OUT
ROTARY SW
CURRENT LIMIT
PHASE COMPENSATOR
2H V-DANCING
MM2
THRESHOLD
SP Ⓗ
V-PULCE
2H Ⓛ
S2
H.SW
F.ADV Ⓗ
SLOW TRACKING
CTL
3.58MHz CLOCK
VCC
CAP FG1 IN
CAP FG1 OUT
CAP FG2 IN
CAP FG2 OUT
GND
SCHMITT 2
SCHMITT 1
FULL TORQUE
H-CMP 2
H-CMP 1
FROM SYSTEM CONTROL
F.ADV Ⓗ
0.42Vp-p
3.58MHz
FS2002 12
CAP FG(1) HEAD
FS2002 10
CAP FG(2) HEAD
0.95msec
35mVp-p(REC)
QR2006.D2005
COMPENSATOR
QR2005
IC2003-12
V REF
V-DANCING
FROM SYSTEM CONTROL
9V OFF Ⓗ
FROM SUB SYSTEM CONTROL
ROTARY SW
FROM SUB SYSTEM CONTROL
A.D. REC Ⓛ
FROM SYSTEM CONTROL
STANBY Ⓛ
STANBY FL OFF Ⓛ
STANBY REC OFF Ⓛ
STANBY N.A. OFF Ⓛ
TO SUB SYSTEM CONTROL
5V
2.5V
0V
33.3msec
5.6msec
CYL PG
CYL FG
R2056
(CYLINDER DRIVE)
ATC
M1
VM
(E)
(A)
(B)
CYL.EV
(IF CYLINDER MOTOR DOESN'T ROTATE, CHECK VOLTAGE OF IC2005-20,12.6V)
PG PULSE GENERATOR
(C)
H/M/L PG/FG CONVERTOR
POSITION SIGNAL PROCESS
CYL MOTOR DRIVE
DIFERENTIAL AMP
(D)
FG PULSE GENERATOR
MM
MOTOR SATURATION DETECTOR
CONTROL VOLTAGE INPUT CIRCUIT
(A) HALL IC OUTPUT (INSIDE) IC2005-17
(B) HALL IC OUTPUT (OUTSIDE) IC2005-15
(C) PG SIGNAL 30Hz
(D) FG SIGNAL 180Hz
(E) PG/FG SIGNAL
5V
0V
M2
M3
VCC
GND
IC2005
AN3810K
+9V
V REF
IC2003-12
IC2005-1.2.23
10Vp-p 180Hz
P2005 2
CYL POWER CONTROL FROM POWER
P2005 1
CYL POWER FROM POWER
FS2001 2 M1
FS2001 1 M2
FS2001 4 M3
FS2001 6
FS2001 7 HES
FS2001 9 H̄ES
FS2001 11 HEM
FS2001 8
FS2001 10 H̄EM
0.5Vp-p
0.5Vp-p
0.55Vp-p
0.6Vp-p
IC2005-14.15.16.17
HES
H̄ES
HEM
H̄EM
HALL IC
DD CYLINDER MOTOR
FLY WHEEL
RING MAGNET (ROTOR SIDE)
MAGNETIZED PATTERN
HALL IC'S (STATOR SIDE)
CYL RING MAGNET AND HALL IC'S
FROM SYSTEM CONTROL
2H Ⓛ
IC2006
AN3821K
(CAPSTAN DRIVE)
+5V
VCC
R2069
VR2004
CAP.FREE RUN
R2067
DIRECTION CONTROL
R/S/F
TORQUE CONTROL
EV
SO
CURRENT LIMIT
POSITION SIGNAL PROCESS
1ST AMP
RIPPLE CANCELLER
3-DIFF SWITCH
CAP MOTOR DRIVE
ATC
R2064
M1
M2
M3
VH
H1+
H1-
H2+
H2-
H3+
H3-
IC2006-5.6.7.8.9.10
140mVp-p
FS2002 13
FS2002 11
FS2002 3
FS2002 1
FS2002 6
FS2002 4
H1+
H1-
H2+
H2-
H3+
H3-
HALL IC
IC2006-1.3.23 2.0Vp-p
FS2002 2
FS2002 5
FS2002 9
D2011
D2013
Q2003
(IF CAPSTAN MOTOR DOESN'T ROTATE CHECK VOLTAGE OF IC2006-24,12.6V)
P2005 4
CAP POWER CTL TO POWER
P2005 3
CAP POWER FROM POWER
P2005 5
CAPSTAN FG TO REEL
DD CAPSTAN MOTOR
FROM SYSTEM CONTROL
CYL ON Ⓛ
TO VIDEO (1)
P2003 9
PLAY Ⓗ
Q2009
D2010
FROM SUB SYSTEM CONTROL
VIDEO REC 5V

EEL SERVO BLOCK DIAGRAM

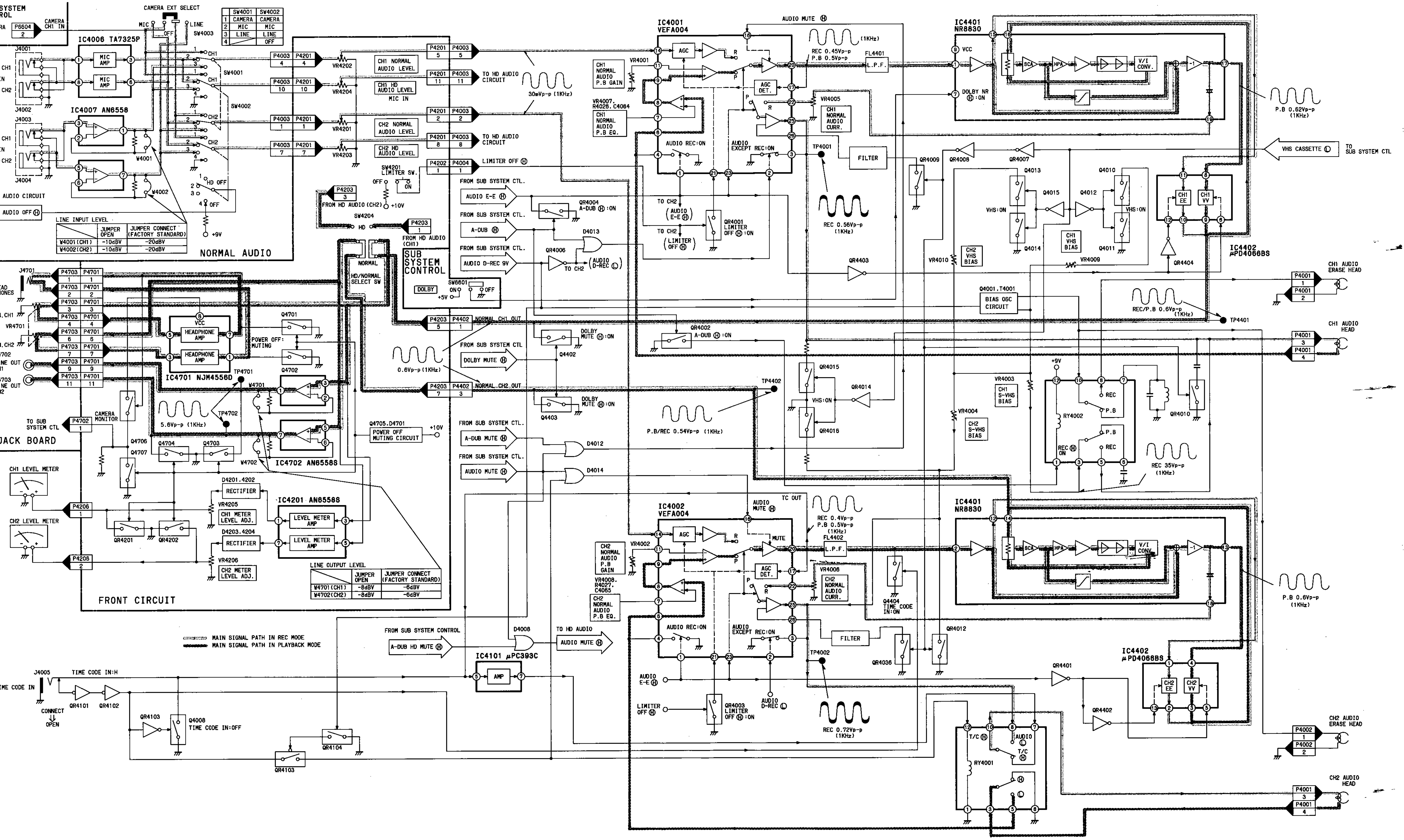


MODE INFORMATION(SUPPLY/TAKE-UP SW CONTROL)

R1 / R0	L	M	H
L	FWD	REV	FF
M	SLOW/STILL STILL-ADV	SHORT REWIND (REC-PLAY)	STOP/ BRAKE
H	LOADING	UNLOADING	REW

MOTOR / MODE	SUPPLY REEL MOTOR	TAKEUP REEL MOTOR
PLAY AND SEARCH FORWARD	THE CONSTANT TENSION IS KEPT BY THE TENSION SENSOR.	THE TORQUE IS CONTROLLED SO AS TO BE IN PROPORTION TO THE RADIUS OF THE TAKEUP REEL.
SEARCH REVERSE	THE TORQUE IS CONTROLLED SO AS TO BE IN PROPORTION TO THE RADIUS OF THE SUPPLY REEL.	THE TORQUE IS CONTROLLED SO AS TO BE IN PROPORTION TO THE RADIUS OF THE TAKEUP REEL.
FF	THE TORQUE IS CONTROLLED ACCORDING TO THE TAKEUP REEL MOTOR CURRENT.	THE SPEED CONTROL OF THE TAKEUP REEL MOTOR IS PERFORMED SO THAT THE SUM OF THE TORQUES OF BOTH REEL MOTORS IS CONSTANT.
REW	THE SPEED CONTROL OF THE SUPPLY REEL MOTOR IS PERFORMED SO THAT THE SUM OF THE TORQUES OF BOTH REEL MOTORS IN CONSTANT.	THE TORQUE IS CONTROLLED ACCORDING TO THE SUPPLY REEL MOTOR CURRENT.
SLOW	THE SAME AS PLAY MODE.	THE SAME AS PLAY MODE. BUT THE REEL RADIUS DATA IS KEPT AS THE PREVIOUS DATA.
LOADING	THE BACK TENSION IS APPLIED BY THE CONSTANT TORQUE.	MECHANICAL LOCK.
UNLOADING	THE BACK TENSION IS APPLIED BY THE CONSTANT TORQUE.	MECHANICAL LOCK.
BRAKE	FF MODE: COUNTER CLOCKWISE TORQUE. REW MODE: CLOCKWISE TORQUE.	FF MODE: COUNTER CLOCKWISE TORQUE. REW MODE: CLOCKWISE TORQUE.

NORMAL AUDIO BLOCK DIAGRAM



	SW4001	SW4002
1	CAMERA	CAMERA
2	MIC	MIC
3	LINE	LINE
4		OFF

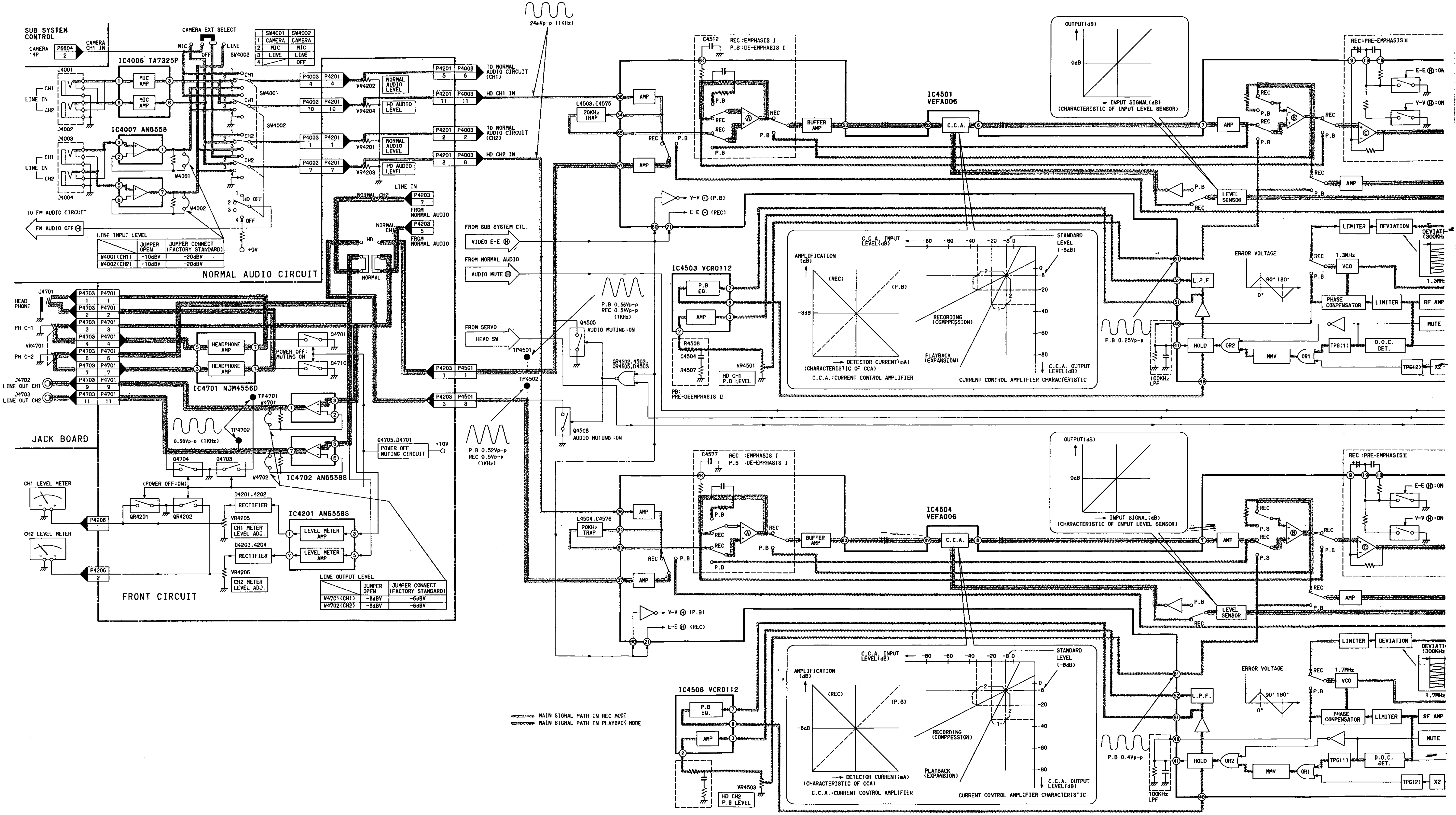
LINE INPUT LEVEL

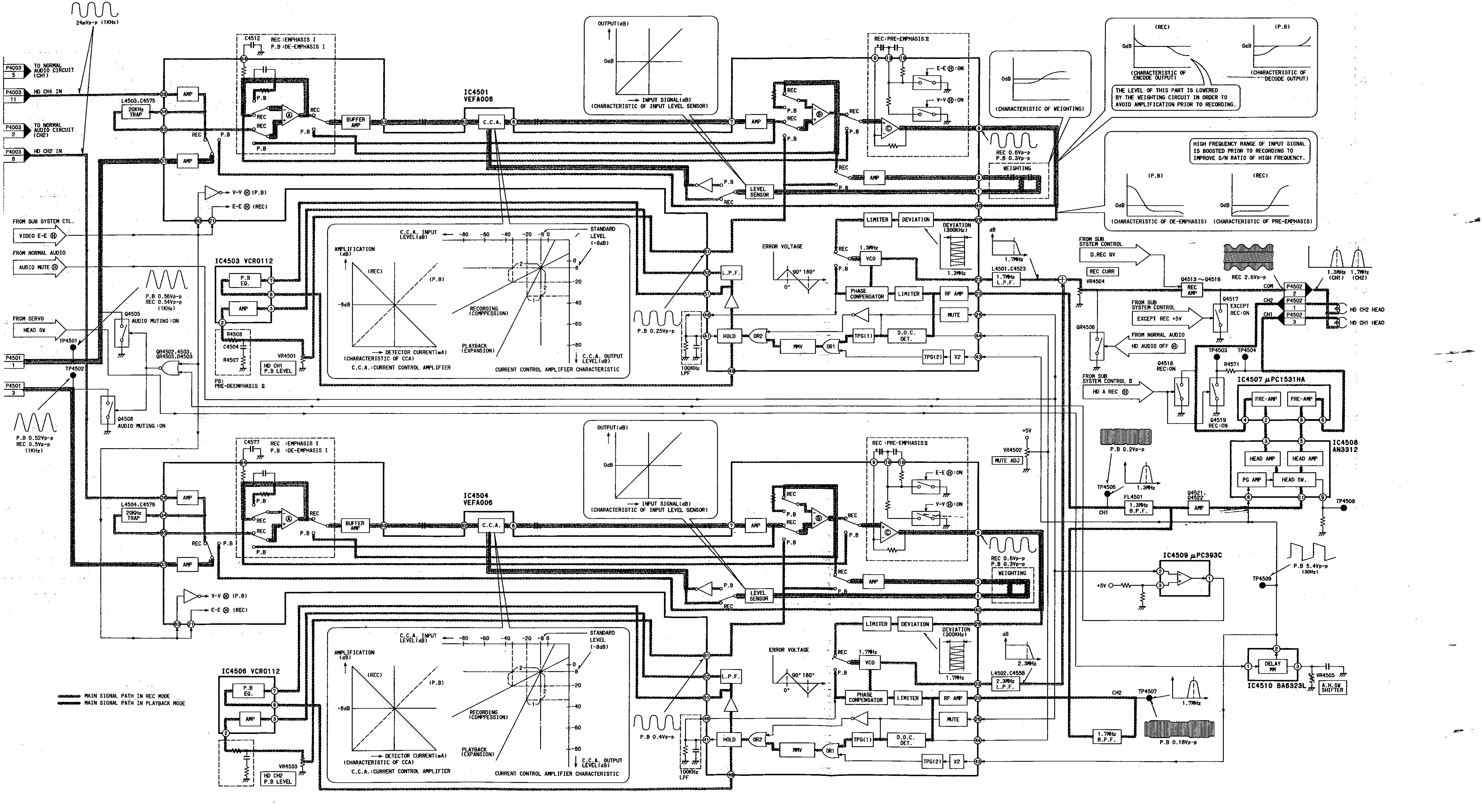
	JUMPER OPEN	JUMPER CONNECT (FACTORY STANDARD)
W4001(CH1)	-10dBV	-20dBV
W4002(CH2)	-10dBV	-20dBV

LINE OUTPUT LEVEL

	JUMPER OPEN	JUMPER CONNECT (FACTORY STANDARD)
W4701(CH1)	-8dBV	-6dBV
W4702(CH2)	-8dBV	-6dBV

HD AUDIO BLOCK DIAGRAM

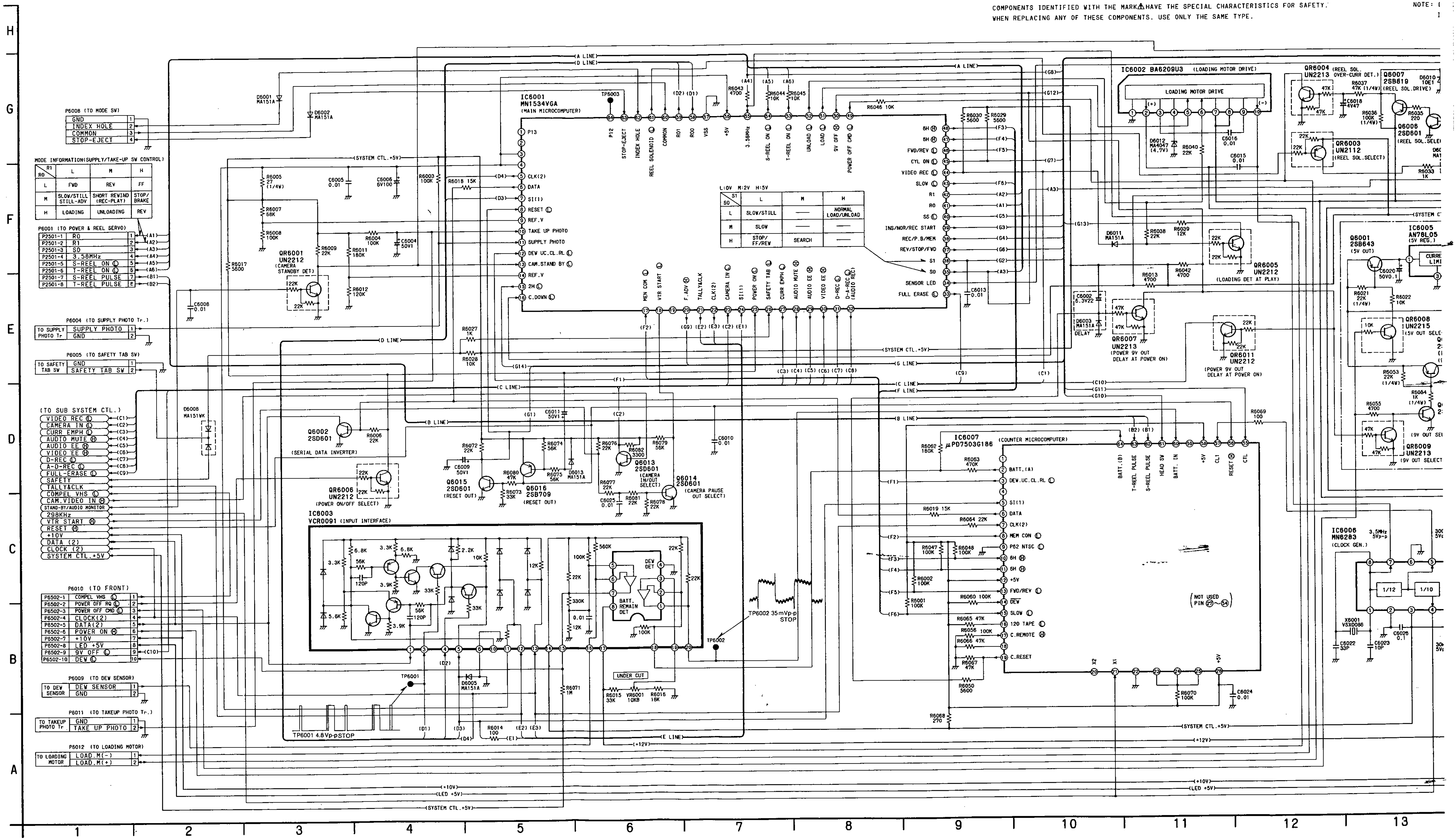



24mVp-p (1KHz)
P4003 5 TO NORMAL AUDIO CIRCUIT (CH1)
P4003 11 HD CH1 IN
P4003 2 TO NORMAL AUDIO CIRCUIT (CH2)
P4003 8 HD CH2 IN
L4503.C4575 20KHz TRAP
L4504.C4576 20KHz TRAP
C4512 REC :EMPHASIS I P.B :DE-EMPHASIS I
C4577 REC :EMPHASIS I P.B :DE-EMPHASIS I
IC4501 VEFA006
IC4504 VEFA006
BUFFER AMP
C.C.A.
OUTPUT(dB)
0dB
INPUT SIGNAL(dB)
(CHARACTERISTIC OF INPUT LEVEL SENSOR)
REC:PRE-EMPHASIS II
E-E Ⓗ:ON
V-V Ⓗ:ON
(CHARACTERISTIC OF WEIGHTING)
(CHARACTERISTIC OF ENCODE OUTPUT)
(CHARACTERISTIC OF DECODE OUTPUT)
THE LEVEL OF THIS PART IS LOWERED BY THE WEIGHTING CIRCUIT IN ORDER TO AVOID AMPLIFICATION PRIOR TO RECORDING.
HIGH FREQUENCY RANGE OF INPUT SIGNAL IS BOOSTED PRIOR TO RECORDING TO IMPROVE S/N RATIO OF HIGH FREQUENCY.
(CHARACTERISTIC OF DE-EMPHASIS)
(CHARACTERISTIC OF PRE-EMPHASIS)
REC 0.6Vp-p P.B 0.3Vp-p
WEIGHTING
LEVEL SENSOR
V-V Ⓗ (P.B)
E-E Ⓗ (REC)
FROM SUB SYSTEM CTL.
VIDEO E-E Ⓗ
FROM NORMAL AUDIO
AUDIO MUTE Ⓗ
FROM SERVO
HEAD SW
TP4501
TP4502
P4501 1
P4501 3
P.B 0.56Vp-p REC 0.54Vp-p (1KHz)
P.B 0.52Vp-p REC 0.5Vp-p (1KHz)
Q4505 AUDIO MUTING :ON
Q4508 AUDIO MUTING :ON
QR4502.4503, QR4505.D4503
IC4503 VCR0112
IC4506 VCR0112
P.B EQ.
AMP
R4508
C4504
R4507
PB: PRE-DEEMPHASIS II
VR4501 HD CH1 P.B LEVEL
VR4503 HD CH2 P.B LEVEL
AMPLIFICATION (dB)
(REC)
(P.B)
-8dB
DETECTOR CURRENT(mA)
(CHARACTERISTIC OF CCA)
C.C.A.:CURRENT CONTROL AMPLIFIER
C.C.A. INPUT LEVEL(dB)
-80 -60 -40 -20 -8 0
STANDARD LEVEL (-8dB)
RECORDING (COMPRESSION)
PLAYBACK (EXPANSION)
C.C.A. OUTPUT LEVEL(dB)
CURRENT CONTROL AMPLIFIER CHARACTERISTIC
L.P.F.
HOLD
OR2
MMV
OR1
TPG(1)
TPG(2)
D.O.C. DET.
X2
MUTE
RF AMP
LIMITER
DEVIATION
DEVIATION (300KHz)
VCO
PHASE COMPENSATOR
ERROR VOLTAGE
90° 180°
1.3MHz
1.7MHz
P.B 0.25Vp-p
P.B 0.4Vp-p
100KHz LPF
L4501.C4523 1.7MHz L.P.F.
L4502.C4558 2.3MHz L.P.F.
2.3MHz
FROM SUB SYSTEM CONTROL
D.REC 9V
REC CURR VR4504
Q4513～Q4516 REC AMP
REC 2.6Vp-p
COM CH2 CH1
P4502 2 1 3
1.3MHz (CH1) 1.7MHz (CH2)
HD CH2 HEAD
HD CH1 HEAD
EXCEPT REC +5V
Q4517 EXCEPT REC:ON
FROM NORMAL AUDIO
HD AUDIO OFF Ⓗ
QR4506
FROM SUB SYSTEM CONTROL II
HD A REC Ⓗ
Q4518 REC:ON
Q4519 REC:ON
TP4503 TP4504 R4571
IC4507 μPC1531HA
PRE-AMP
HEAD AMP
PG AMP
HEAD SW.
IC4508 AN3312
+5V
VR4502 MUTE ADJ
P.B 0.2Vp-p
TP4506
CH1
FL4501 1.3MHz B.P.F.
Q4521, Q4522
TP4508
IC4509 μPC393C
TP4509
P.B 5.4Vp-p (30Hz)
1.7MHz B.P.F.
CH2
TP4507
P.B 0.18Vp-p
DELAY MM
IC4510 BA6323L
VR4505 A.H.SW SHIFTER
MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE

SYSTEM CONTROL SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK⚠HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS. USE ONLY THE SAME TYPE.

NOTE:


IC6001 MN1534VGA (MAIN MICROCOMPUTER)
IC6002 BA6209U3 (LOADING MOTOR DRIVE)
IC6003 VCR0091 (INPUT INTERFACE)
IC6005 AN78L05 (5V REG.)
IC6006 MN6283 (CLOCK GEN.)
IC6007 µPD7503G186 (COUNTER MICROCOMPUTER)
P6008 (TO MODE SW)
GND
INDEX HOLE
COMMON
STOP-EJECT
MODE INFORMATION(SUPPLY/TAKE-UP SW CONTROL)
P6001 (TO POWER & REEL SERVO)
P6004 (TO SUPPLY PHOTO Tr.)
SUPPLY PHOTO
P6005 (TO SAFETY TAB SW)
SAFETY TAB SW
(TO SUB SYSTEM CTL.)
VIDEO REC
CAMERA IN
CURR EMPH
AUDIO MUTE
AUDIO EE
VIDEO EE
D-REC
A-D-REC
FULL-ERASE
SAFETY
TALLY&CLK
COMPEL VHS
CAM.VIDEO IN
STAND-BY/AUDIO MONITOR
298KHz
VTR START
RESET
+10V
DATA (2)
CLOCK (2)
SYSTEM CTL.+5V
P6010 (TO FRONT)
P6009 (TO DEW SENSOR)
DEW SENSOR
P6011 (TO TAKEUP PHOTO Tr.)
TAKE UP PHOTO
P6012 (TO LOADING MOTOR)
LOAD.M(-)
LOAD.M(+)
Q6002 2SD601 (SERIAL DATA INVERTER)
QR6001 UN2212 (CAMERA STANDBY DET)
QR6006 UN2212 (POWER ON/OFF SELECT)
Q6015 2SD601 (RESET OUT)
Q6016 2SB709 (RESET OUT)
Q6013 2SD601 (CAMERA IN/OUT SELECT)
Q6014 2SD601 (CAMERA PAUSE OUT SELECT)
QR6005 UN2212 (LOADING DET AT PLAY)
QR6007 UN2213 (POWER 9V OUT DELAY AT POWER ON)
QR6011 UN2212 (POWER 9V OUT DELAY AT POWER ON)
QR6004 UN2213 (REEL SOL. OVER-CURR DET.)
QR6003 UN2112 (REEL SOL.SELECT)
Q6007 2SB819 (REEL SOL.DRIVE)
Q6006 2SD601 (REEL SOL.SELECT)
Q6001 2SB643 (5V OUT)
QR6008 UN2215 (5V OUT SELECT)
QR6009 UN2213 (9V OUT SELECT)
TP6001 4.8Vp-p STOP
TP6002 35mVp-p STOP
TP6003
UNDER CUT
(NOT USED PIN ㉗~㉞)
A LINE
B LINE
C LINE
D LINE
E LINE
F LINE
G LINE
SYSTEM CTL.+5V
+12V
+10V
LED +5V
A B C D E F G H
1 2 3 4 5 6 7 8 9 10 11 12 13

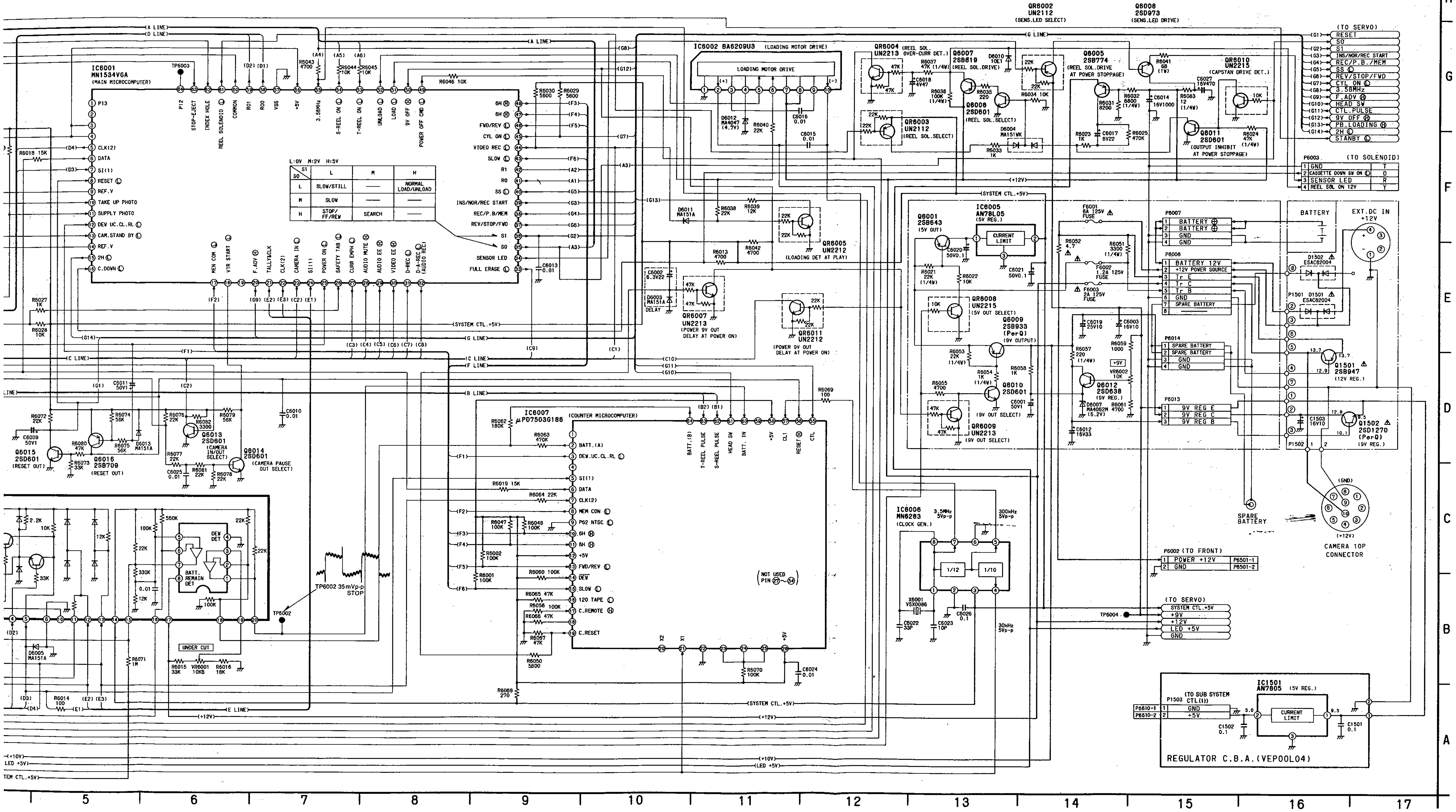
S1 \ S0	L	M	H
L	SLOW/STILL	—	NORMAL LOAD/UNLOAD
M	SLOW	—	—
H	STOP/FF/REW	SEARCH	—

L:0V M:2V H:5V

SYSTEM CTL.
HD AUDIO BLOCK

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK⚠HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS. USE ONLY THE SAME TYPE.

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST. AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.


IC6001 MN1534VGA (MAIN MICROCOMPUTER)
IC6002 BA6209U3 (LOADING MOTOR DRIVE)
LOADING MOTOR DRIVE
IC6005 AN78L05 (5V REG.)
IC6006 MN6283 (CLOCK GEN.)
IC6007 μPD7503G186 (COUNTER MICROCOMPUTER)
IC1501 AN7805 (5V REG.)
CURRENT LIMIT
REGULATOR C.B.A.(VEP00L04)
QR6002 UN2112 (SENS.LED SELECT)
Q6008 2SD973 (SENS.LED DRIVE)
QR6004 UN2213 (REEL SOL. OVER-CURR DET.)
Q6007 2SB819 (REEL SOL.DRIVE)
QR6003 UN2112 (REEL SOL.SELECT)
Q6006 2SD601 (REEL SOL.SELECT)
Q6005 2SB774 (REEL SOL.DRIVE AT POWER STOPPAGE)
QR6010 UN2215 (CAPSTAN DRIVE DET.)
Q6011 2SD601 (OUTPUT INHIBIT AT POWER STOPPAGE)
QR6005 UN2212 (LOADING DET AT PLAY)
QR6007 UN2213 (POWER 9V OUT DELAY AT POWER ON)
QR6011 UN2212 (POWER 9V OUT DELAY AT POWER ON)
Q6001 2SB643 (5V OUT)
QR6008 UN2215 (5V OUT SELECT)
Q6009 2SB933 (P or Q) (9V OUTPUT)
Q6010 2SD601 (9V OUT SELECT)
QR6009 UN2213 (9V OUT SELECT)
Q6012 2SD638 (9V REG.)
Q1501 2SB947 (12V REG.)
Q1502 2SD1270 (P or Q) (9V REG.)
Q6015 2SD601 (RESET OUT)
Q6016 2SB709 (RESET OUT)
Q6013 2SD601 (CAMERA IN/OUT SELECT)
Q6014 2SD601 (CAMERA PAUSE OUT SELECT)
BATT. REMAIN DET
DEW DET
UNDER CUT
TP6002 35mVp-p STOP
TP6003
TP6004
L:0V M:2V H:5V
S1 / S0: L / M / H
L: SLOW/STILL / — / NORMAL LOAD/UNLOAD
M: SLOW / — / —
H: STOP/FF/REW / SEARCH / —
P13, P12, STOP-EJECT, INDEX HOLE, REEL SOLENOID Ⓛ, COMMON, RO1, RO0, VSS, +5V, 3.58MHz, S-REEL ON Ⓛ, T-REEL ON Ⓛ, UNLOAD Ⓛ, LOAD Ⓛ, 9V OFF Ⓗ, POWER OFF CMD Ⓛ
6H Ⓗ, 8H Ⓗ, FWD/REV Ⓛ, CYL ON Ⓛ, VIDEO REC Ⓛ, SLOW Ⓛ, R1, R0, SS Ⓛ, INS/NOR/REC START, REC/P.B/MEM, REV/STOP/FWD, S1, S0, SENSOR LED, FULL ERASE Ⓛ
CLK(2), DATA, SI(1), RESET Ⓛ, REF.V, TAKE UP PHOTO, SUPPLY PHOTO, DEW UC.CL.RL Ⓛ, CAM.STAND BY Ⓛ, REF.V, 2H Ⓛ, C.DOWN Ⓛ
MEN COM Ⓛ, VTR START Ⓛ, F.ADV Ⓗ, TALLY&CLK, CLK(2), CAMERA IN Ⓛ, SI(1), POWER ON Ⓛ, SAFETY TAB Ⓛ, CURR EMPH Ⓛ, AUDIO MUTE Ⓗ, AUDIO EE Ⓗ, VIDEO EE Ⓗ, D-REC Ⓛ, D-A-REC Ⓛ (AUDIO REC)
BATT.(A), DEW.UC.CL.RL Ⓛ, SI(1), DATA, CLK(2), MEM CON Ⓛ, P62 NTSC Ⓛ, 6H Ⓗ, 8H Ⓗ, +5V, FWD/REV Ⓛ, DEW, SLOW Ⓛ, 120 TAPE Ⓛ, C.REMOTE Ⓗ, C.RESET
BATT.(B), T-REEL PULSE, S-REEL PULSE, HEAD SW, BATT. IN, +5V, CL1, RESET Ⓛ, CTL
X1, X2
(NOT USED PIN 27~54)
(TO SERVO): RESET, S0, S1, INS/NOR/REC START, REC/P.B./MEM, SS Ⓛ, REV/STOP/FWD, CYL ON Ⓛ, 3.58MHz, F.ADV Ⓗ, HEAD SW, CTL.PULSE, 9V OFF Ⓗ, PB.LOADING Ⓗ, 2H Ⓛ, STANBY Ⓛ
P6003 (TO SOLENOID): 1 GND T, 2 CASSETTE DOWN SW ON Ⓛ O, 3 SENSOR LED R, 4 REEL SOL ON 12V Y
P6007: 1 BATTERY ⊕, 2 BATTERY ⊕, 3 GND, 4 GND
P6006: 1 BATTERY 12V, 2 +12V POWER SOURCE, 3 Tr E, 4 Tr C, 5 Tr B, 6 GND, 7 SPARE BATTERY
P6014: 1 SPARE BATTERY, 2 SPARE BATTERY, 3 GND, 4 GND
P6013: 1 9V REG E, 2 9V REG C, 3 9V REG B
P6002 (TO FRONT): 1 POWER +12V P6501-1, 2 GND P6501-2
(TO SERVO): SYSTEM CTL.+5V, +9V, +12V, LED +5V, GND
P1503 (TO SUB SYSTEM CTL(1)): P6610-1 1 GND, P6610-2 2 +5V
F6001 6A 125V FUSE ⚠
F6002 1.2A 125V FUSE
F6003 2A 125V FUSE
D1502 ESAC82004 ⚠
D1501 ESAC82004 ⚠
BATTERY
EXT.DC IN +12V
SPARE BATTERY
CAMERA 10P CONNECTOR (GND) (+12V)
P1501, P1502
A LINE, B LINE, C LINE, D LINE, E LINE, F LINE, G LINE, SYSTEM CTL.+5V, +12V, +10V, LED +5V
H, G, F, E, D, C, B, A
5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17

SYSTEM CONTROL ICs DC VOLTAGE CHART

REF. NO.	IC6001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	4.8	3.8	4.8	4.8	4.5	0.2	4.5	5.0	2.9	5.0	5.0	4.9	5.0	2.0	0	0	4.9	0.1	0	0.3
PLAY	4.8	3.8	4.8	4.8	4.5	0.6	4.6	5.0	2.9	5.0	5.0	4.9	5.0	2.0	0	0	4.9	0.1	0	0
REC	4.8	3.8	4.8	4.8	4.5	0.2	3.9	5.0	2.9	5.0	5.0	4.9	5.0	2.0	0	0	4.9	0.1	0	0
F.F	4.8	3.8	4.8	4.8	4.5	0.3	4.2	5.0	2.9	5.0	5.0	4.9	5.0	2.0	0	0	4.9	0.1	0	0
REW	4.8	3.8	4.8	4.8	4.5	0.4	4.1	5.0	2.9	5.0	5.0	4.9	5.0	2.0	0	0	4.9	0.1	0	0

REF. NO.	IC6001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	4.7	4.5	4.7	4.5	0	0.7	4.8	0	4.7	4.7	5.1	4.5	9.5	9.5	4.4	0.1	2.0	4.8	2.0	0.1
PLAY	4.7	4.5	4.7	4.6	0	0.7	0	0	0	0	5.1	4.4	9.4	9.4	0.1	4.8	0	2.0	2.0	4.9
REC	4.7	4.5	4.7	3.8	0	0.7	4.8	0	4.7	4.7	0.1	0.1	0.1	9.3	0.1	4.8	0	4.8	0	4.8
F.F	4.7	4.5	4.7	4.1	0	0.7	4.8	0	4.7	4.7	5.1	4.5	9.5	0.1	4.4	0.1	2.0	4.8	2.0	0.1
REW	4.7	4.5	4.7	4.1	0	0.7	4.8	0	4.7	4.7	5.1	4.5	9.5	0.1	4.4	0.1	2.0	4.8	2.0	0.1

REF. NO.	IC6001																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	2.0	4.8	4.9	4.5	4.4	4.9	0	0	5.2	0.1	0	0	4.8	4.8	2.9	4.9	0	0.9	1.4	0.7
PLAY	0	0.1	4.9	4.5	0.1	4.9	0	0	5.2	0.1	0	0	0	0	2.9	4.9	0	0.9	1.4	0.7
REC	0	0.1	4.7	0.1	0.1	4.7	0	0	5.2	0.1	0	0	0	0	2.9	4.9	0	0.9	1.4	0.7
F.F	0	4.7	4.8	4.5	4.4	4.8	0	0	5.2	0.1	0	0	0	0	2.9	4.9	0	0.9	1.4	0.7
REW	4.8	4.7	4.8	4.5	4.4	0	0	0	5.2	0.1	0	0	0	0	2.9	4.9	0	0.9	1.4	0.7

REF. NO.	IC6001										IC6002									
MODE	61	62	63	64							1	2	3	4	5	6	7	8	9	10
STOP	4.8	1.1	1.1	4.8							0	0.6	0.9	1.0	0	0	13.5	13.5	0.9	0.6
PLAY	4.8	1.1	4.9	4.8							0	0.6	0.9	1.0	0	0	13.5	13.5	0.9	0.6
REC	4.8	1.1	4.8	4.8							0	0.6	0.9	1.0	0	0	13.5	13.5	0.9	0.6
F.F	4.8	1.1	1.1	4.8							0	0.6	0.9	1.0	0	0	13.5	13.5	0.9	0.6
REW	4.8	1.1	1.1	4.8							0	0.6	0.9	1.0	0	0	13.5	13.5	0.9	0.6

REF. NO.	IC6003																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	4.3		0.9	1.4	4.5	0				4.3	4.8	4.7	4.5	5.0	4.7	0	13.5	3.6	5.0	5.0
PLAY	4.5		0.9	1.4	4.6	0				4.5	4.9	4.7	4.5	5.0	4.7	0	13.5	3.6	5.0	5.0
REC	3.5		0.9	1.4	3.9	0				4.6	4.9	4.7	4.5	5.0	4.7	0	13.5	3.6	5.0	5.0
F.F	2.8		0.9	1.4	4.1	0				2.8	4.9	4.7	4.5	5.0	4.7	0	13.5	3.6	5.0	5.0
REW	2.7		0.9	1.4	4.1	0				2.8	4.9	4.7	4.5	5.0	4.7	0	13.5	3.6	5.0	5.0

REF. NO.	IC6005										IC6006									
MODE	I	G	O								1	2	3	4	5	6	7	8		
STOP	12.6	0	5.0								2.6	0	5.0	2.5	2.6	0	2.8	2.2		
PLAY	12.6	0	5.0								2.6	0	5.0	2.5	2.6	0	2.8	2.2		
REC	12.6	0	5.0								2.6	0	5.0	2.5	2.6	0	2.8	2.2		
F.F	12.6	0	5.0								2.6	0	5.0	2.5	2.6	0	2.8	2.2		
REW	12.6	0	5.0								2.6	0	5.0	2.5	2.6	0	2.8	2.2		

REF. NO.	IC6007																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0.1	0.1	4.9	0	3.6	3.8	4.4	4.8	0	0	0	4.9	4.9	4.8	4.8	5.0	0	0	0	2.4
PLAY	0.1	0.1	4.9	0	4.6	3.6	4.5	4.9	0	0	0	4.9	4.9	4.8	4.8	5.0	0	0	0	2.4
REC	1.6	0.1	4.9	0	4.6	3.7	4.5	4.9	0	0	0	4.9	4.9	4.8	4.8	5.0	0	0	0	2.4
F.F	0.2	0.1	4.9	0	4.1	2.2	4.5	4.9	0	0	0	4.9	4.9	4.8	4.8	5.0	0	0	0	2.4
REW	0.2	0.1	4.9	0	4.1	2.1	4.5	4.9	0	0	0	4.9	4.9	4.8	4.8	5.0	0	0	0	2.4

REF. NO.	IC6007																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	2.5	0	4.8	4.8	4.8	4.9	4.8	4.8	4.8	4.8	4.7	4.7	4.7	4.7	4.8	4.7	4.7	4.7	4.7	4.7
PLAY	2.5	0	4.8	4.8	4.8	4.9	4.8	4.8	4.8	4.8	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
REC	2.5	0	4.8	4.8	4.8	4.9	4.8	4.8	4.8	4.8	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
F.F	2.5	0	4.8	4.8	4.8	4.9	4.8	4.8	4.8	4.8	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
REW	2.5	0	4.8	4.8	4.8	4.9	4.8	4.8	4.8	4.8	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7

REF. NO.	IC6007																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	0	0	2.6	4.9	2.4	5.0
PLAY	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	0	0	2.6	4.9	2.4	5.0
REC	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	2.4	0	2.6	4.9	2.4	5.0
F.F	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.8	4.7	4.7	0	0	2.6	4.9	2.4	5.0
REW	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.8	4.7	4.8	4.7	4.7	4.7	0	0	2.6	4.9	2.4	5.0

REF. NO.	IC6007																			
MODE	61	62	63	64																
STOP	4.0	0.1	0.1	0.1																
PLAY	2.1	5.1	3.4	0.1																
REC	2.0	5.1	3.4	0.1																
F.F	0.1	2.6	2.6	0.1																
REW	0.1	2.6	2.6	0.3																

SYSTEM CONTROL TRANSISTORs DC VOLTAGE CHART

REF. NO.	Q6001			Q6002			Q6005			Q6006			Q6007			Q6008		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	12.8	12.7	12.2	0	4.5	0.6	5.2	−0.1	6.9	0	13.0	0	13.5	0	13.1	−2.4	13.7	−2.1
PLAY	12.8	12.7	12.0	0	—	—	5.2	0	6.9	0	13.0	0	13.5	0	13.1	−2.2	13.5	−2.1
REC	0	0	0.7	0	—	—	5.2	0	6.9	0	13.0	0	13.5	0	13.1	−2.2	13.4	−1.9
F.F	12.8	12.7	12.1	0	2.9	0.3	5.2	−0.1	6.9	0	13.0	0	13.5	0	13.1	8.9	12.2	9.5
REW	12.8	12.7	12.1	0	2.9	0.3	5.2	−0.1	6.9	0	13.0	0	13.5	0	13.1	8.9	12.2	9.5

REF. NO.	Q6009			Q6010			Q6011			Q6012			Q6013			Q6014		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	12.8	12.7	12.1	0	0.1	0.7	0	−0.1	0	6.4	10.1	7.0	0	4.7	0	0	0.1	0.5
PLAY	12.8	12.7	12.1	0	0.1	0.7	0	0	0.7	6.4	10.1	7.0	0	4.7	0	0	0.1	0.5
REC	12.8	12.7	12.1	0	0.1	0.7	0	0	0.7	6.4	10.1	7.0	0	4.7	0	0	0.1	0.5
F.F	12.8	12.7	12.1	0	0.1	0.7	0	−0.1	0	6.4	10.1	7.0	0	4.7	0	0	0.1	0.5
REW	12.8	12.7	12.1	0	0.1	0.7	0	−0.1	0	6.4	10.1	7.0	0	4.7	0	0	0.1	0.5

REF. NO.	Q6015			Q6016														
MODE	E	C	B	E	C	B												
STOP	0	5.0	0	5.0	0	5.0												
PLAY	0	5.0	0	5.0	0	5.0												
REC	0	5.0	0	5.0	0	5.0												
F.F	0	5.0	0	5.0	0	5.0												
REW	0	5.0	0	5.0	0	5.0												

REF. NO.	QR6001			QR6002			QR6003			QR6004			QR6005			QR6006		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	5.0	0	9.5	−1.8	9.5	5.0	−2.4	4.9	0	5.2	0	0	4.6	0	0	0	5.0
PLAY	5.1	−2.3	5.1	9.5	−1.6	9.4	5.0	−2.5	4.9	0	5.2	0	0	2.0	0	0	0	5.0
REC	0	0.1	0	9.5	−2.0	9.4	5.0	−2.9	4.9	0	5.2	0	0	4.6	0	0	0	5.0
F.F	0	5.0	0.3	9.5	9.5	0.1	5.0	−2.9	4.9	0	5.2	0	0	4.6	0	0	0	5.0
REW	0	5.0	0	9.5	9.5	0.1	5.0	−2.9	4.9	0	5.2	0	0	4.6	0	0	0	5.0

REF. NO.	QR6007			QR6008			QR6009			QR6010			QR6011					
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B			
STOP	0	0.1	0	0	0	2.5	0	0.7	0.1	0	0	4.4	0	12.3	0.1			
PLAY	0	0.1	0	0	0	2.5	0	0.7	0.1	0	0.7	0.1	0	12.3	0.1			
REC	0	0.1	0	0	0	2.5	0	0.7	0.1	0	0.7	0.1	0	12.3	0.1			
F.F	0	0.1	0	0	0	2.5	0	0.7	0.1	0	0	4.4	0	12.3	0.1			
REW	0	0.1	0	0	0	2.5	0	0.7	0.1	0	0	4.4	0	12.3	0.1			

MEASUREMENT TAPE…S-VHS CASSETTE TAPE

SUB SYSTEM CONTROL (1)/(2) ICs DC VOLTAGE CHART

REF. NO.	IC6601																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17			
STOP	0	−0.1	0.3	5.1	2.9	4.5	5.0	3.8	5.1	9.5	0	9.5	0	9.5	0.1	9.5	0.6			
PLAY	0	−0.7	0.3	5.1	3.4	4.5	5.0	0	0	9.5	0	9.5	0	9.5	0.2	9.5	0.6			
REC	0	5.1	0.3	5.1	0	0.1	0	3.8	5.1	0	9.1	0	8.9	3.2	9.2	9.5	0.6			
F.F	0	0.3	0.3	5.1	2.6	4.5	5.0	3.8	5.1	9.5	0	9.5	0	9.5	0.1	9.5	0.6			
REW	0	0.9	0.3	5.1	1.2	4.5	5.0	3.8	5.1	9.5	0	9.5	0	9.5	0.1	9.5	0.6			

REF. NO.	IC6602																			
MODE	1	2	3	4	5	6	7	8												
STOP	0	4.7	0	6.8	6.8	13.1	7.8	7.6												
PLAY	0.3	4.7	0	6.8	6.8	13.0	7.8	7.6												
REC	0.3	4.7	0	6.8	6.8	13.0	7.8	7.6												
F.F	0.3	4.7	0	6.8	6.8	13.0	7.8	7.6												
REW	0.3	4.7	0	6.8	6.8	13.0	7.8	7.6												

REF. NO.	IC6603																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	0.2	4.7	5.0	0.2	4.7	4.7	0	0	0	5.1	0	4.5	4.5	5.1						
PLAY	5.1	0.1	5.0	5.0	0	0	0	0.1	0.1	5.1	0	4.4	4.4	5.1						
REC	0.2	4.7	5.0	0.2	4.7	4.7	0	0.1	0.1	5.1	5.1	0.1	0.1	5.1						
F.F	0.2	4.7	5.0	0.2	4.7	4.7	0	0.1	0.1	5.1	0	4.4	4.4	5.1						
REW	0.2	4.7	5.0	0.2	4.7	4.7	0	0.1	0.1	5.1	0	4.5	4.5	5.1						

REF. NO.	IC6604																			
MODE	1	2	3	4	5	6	7	8												
STOP	0	4.8	0	0	3.7	3.4	0	9.5												
PLAY	0	4.8	0	0	3.4	1.7	0	9.5												
REC	0	4.8	0	0	3.2	3.2	0	9.5												
F.F	0	4.8	0	0	3.4	2.6	0	9.5												
REW	0	4.8	0	0	3.7	2.5	0	9.5												

REF. NO.	IC6605																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	4.5	4.6	4.5	0	9.5	1.6	2.2	2.4	5.0	0	2.6	0	2.7	2.8	2.7	2.8	2.6	2.9	0
PLAY	0	4.5	4.6	4.5	0.2	9.5	2.3	2.2	2.4	5.0	0	2.3	2.2	2.3	0	2.2	2.1	2.0	2.0	0
REC	0	4.5	4.6	4.5	0	9.5	3.5	2.2	2.4	5.0	0	2.8	2.6	0.1	2.6	2.7	2.8	2.6	2.7	0
F.F	0	4.5	1.0	2.6	0	9.5	1.6	0	2.4	5.0	0	1.8	1.6	1.7	2.0	1.6	1.7	1.6	1.5	0
REW	0	4.5	4.6	2.6	0	9.5	1.3	2.2	2.4	5.0	0	1.4	1.3	1.3	1.3	0	1.4	0.6	0	0

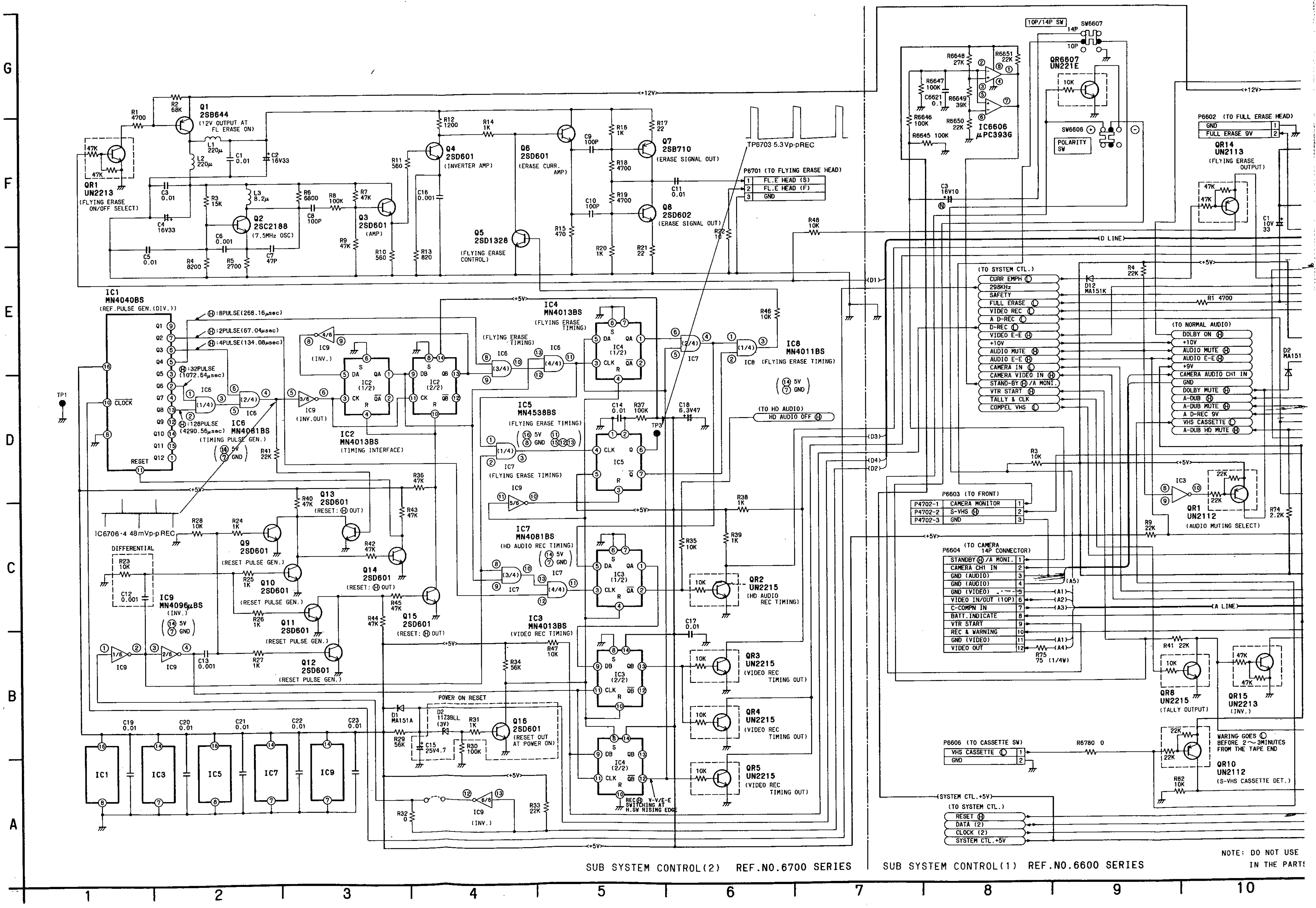
REF. NO.	IC6606																			
MODE	1	2	3	4	5	6	7	8												
STOP	0	0	3.5	0	0	1.2	0	5.0												
PLAY	0	0	3.5	0	0	1.2	0	5.0												
REC	0	0	3.5	0	5.0	0	1.2	0.3												
F.F	0	0	3.5	0	0	1.2	0	0												
REW	0	0.3	3.5	0	0	1.2	0	5.0												
REF. NO.	IC6701																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
STOP	0	2.1	2.5	2.0	2.5	2.5	2.6	0	2.5	2.5	0	0	1.1	0	0	5.1				
PLAY	0.5	2.1	2.5	1.8	2.5	2.1	2.6	0	2.5	0.5	0.5	0	1.1	0.5	0.5	5.1				
REC	0	2.1	2.5	2.0	2.5	2.5	2.6	0.3	2.5	2.5	0	0	1.1	0	0	0.3				
F.F	0	0.1	2.5	2.0	2.5	0.1	2.6	0	2.5	2.5	0	0	1.1	0	0	5.1				
REW	0	2.1	2.5	2.0	2.5	2.5	2.6	0	2.5	2.5	0	0	1.1	0	0	5.1				
REF. NO.	IC6702																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	2.6	2.6	5.1	0	2.6	0	0	0	2.6	0	5.1	2.6	2.6	5.1						
PLAY	3.4	1.8	5.1	0	3.4	0	0	0	3.4	0	5.1	3.4	1.8	5.1						
REC	3.4	1.8	5.1	0	3.4	0	0	0	3.4	0	5.1	3.4	1.8	5.1						
F.F	2.6	2.6	5.1	0	2.6	0	0	0	2.6	0	5.1	2.6	2.6	5.1						
REW	2.6	2.6	5.1	0	2.6	0	0	0	2.6	0	5.1	2.6	2.6	5.1						
REF. NO.	IC6703																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	0	5.0	0	0	0	0	0	0	0	0	5.1	5.1	0	5.1						
PLAY	0	5.0	0.9	0	0	0	0	0	0	0	2.6	5.1	0	5.1						
REC	5.1	0	0.9	0	5.1	0	0	0	5.1	0	2.6	0	4.9	5.1						
F.F	0	5.0	1.3	0	0	0	0	0	0	0	0	5.1	0	5.1						
REW	0	5.0	1.3	0	0	0	0	0	0	0	0	5.1	0	5.1						
REF. NO.	IC6704																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	0	5.1	0.6	0	0	0	0	0	5.1	0	5.1	0	5.1	5.1						
PLAY	0	5.1	0.8	0	0	0	0	0	5.1	0	2.6	0	5.1	5.1						
REC	5.1	0	0.8	0	5.0	0	0	0	0.1	0	2.6	5.0	0	5.1						
F.F	0	5.1	0.6	0	0	0	0	0	5.1	0	0	0	5.1	5.1						
REW	0	5.1	0.6	0	0	0	0	0	5.1	0	0	0	5.1	5.1						
REF. NO.	IC6705																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
STOP	0	4.1	5.1	0.6	5.1	1.3	3.8	0	5.1	0	5.1	0	0	5.1	0	5.1				
PLAY	0	4.5	5.1	0.5	5.1	0.9	4.2	0	5.1	0	5.1	0	0.4	5.1	0	5.1				
REC	0	4.5	5.1	0.1	0	0.9	4.2	0	5.1	0	5.1	0	0	5.1	0	5.1				
F.F	0.3	4.2	5.1	0.3	5.1	0.3	3.8	0	5.1	0	5.1	0	0	5.1	0	5.1				
REW	0	4.2	5.1	0.6	5.1	1.3	0.7	0	5.1	0	5.1	0	0	5.1	0	5.1				
REF. NO.	IC6706																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	2.1	1.1	0.1	0	0.1	2.5	0	2.5	2.6	1.3	0.6	1.3	2.6	5.1						
PLAY	2.1	1.1	0.1	0	0.1	2.5	0	2.5	1.8	0.8	0.8	0.8	3.4	5.1						
REC	2.1	1.1	0.1	0	0.1	2.5	0	2.5	1.8	0.8	0.8	0.8	3.4	5.1						
F.F	2.1	1.1	0.1	0	0.1	2.5	0	2.5	2.6	1.3	0.6	1.3	2.6	5.1						
REW	2.1	1.1	0.1	0	0.1	2.5	0	2.5	2.6	1.3	0.6	1.3	2.6	5.1						
REF. NO.	IC6707																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	0.6	0	0	0	0	0	0	0	2.6	0	0	2.6	0	5.1						
PLAY	0.8	2.6	0.4	0	0	0	0	2.6	3.4	1.7	0.9	2.6	1.7	5.1						
REC	0.8	2.6	0.4	5.1	5.0	5.1	0	2.6	3.4	1.7	0.9	2.6	1.7	5.1						
F.F	0.6	5.1	0.6	0	0	0	0	5.1	2.6	2.6	1.3	2.6	2.6	5.1						
REW	0.6	5.1	0.6	0	0	0	0	5.1	2.6	2.6	1.3	2.6	2.6	5.1						
REF. NO.	IC6708																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	0	0.6	5.0	0.7	0	0	1.4	0	0	5.1	5.1	0	0	5.1						
PLAY	0	0.5	5.0	5.1	0	0.6	0	0	0	5.1	5.1	0	0	5.1						
REC	5.1	4.2	0.9	5.1	0.3	0	0	0	0	5.1	5.1	0	0	5.1						
F.F	0	3.8	5.0	5.1	0.4	0.4	0.4	0	0	5.1	5.1	0	0	5.1						
REW	0	3.8	5.0	0.1	0	0	0	0	0	5.1	5.1	0	0	5.1						
REF. NO.	IC6709																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	0.1	5.1	5.1	0	0	5.1	0	2.5	2.6	5.1	0	5.1	0.1	5.1						
PLAY	2.1	2.5	2.5	2.5	0	5.1	0	3.4	0.6	5.1	0.6	2.5	2.1	5.1						
REC	2.0	2.6	2.6	2.6	0	5.1	0	3.4	1.8	5.1	0	2.6	2.0	5.1						
F.F	0.1	5.1	5.1	0	0	5.1	0	2.5	2.5	5.1	0	5.1	0.1	0.6						
REW	0.6	5.1	5.1	0	0	5.1	0	2.5	2.5	5.1	0	5.1	0.1	5.1						

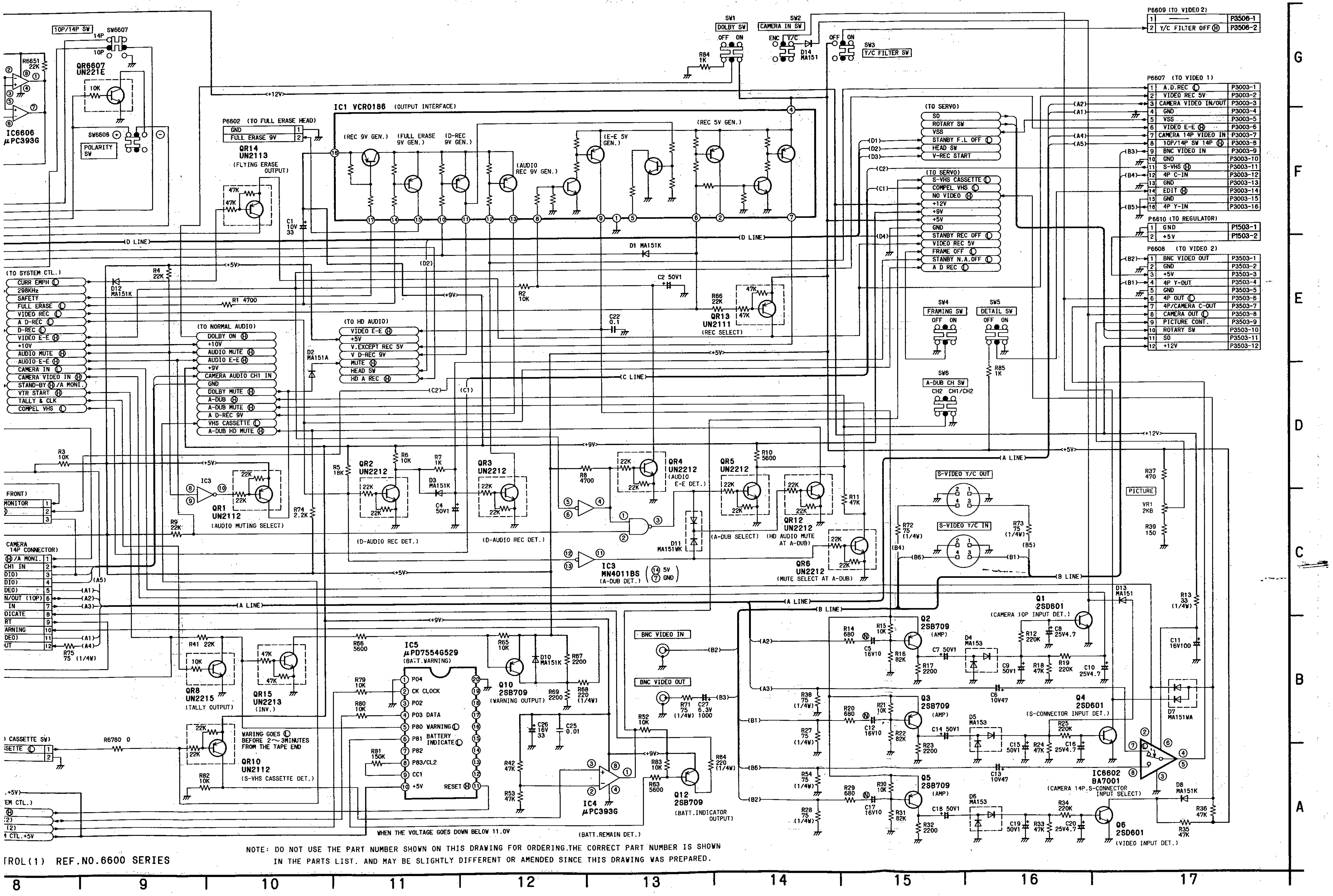
SUB SYSTEM CONTROL (1)/(2) TRANSISTORs DC VOLTAGE CHART

REF. NO.	Q6601			Q6602			Q6603			Q6604			Q6605			Q6606		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	10.6	0	5.1	0.1	4.5	5.1	0.1	4.5	0	8.6	0	5.1	0.9	4.6	0	0	0.6
PLAY	0	10.6	0	0	0	0	0	0	0	0	8.6	0	0	0	0	0	5.1	0
REC	0	10.6	0	5.1	0.1	4.5	5.1	0.1	4.5	0	8.6	0	5.1	0.9	4.6	0	0	0.6
F.F	0	10.6	0	5.1	0.1	4.5	5.1	0.1	4.5	0	8.6	0	5.1	0.9	4.6	0	0	0.6
REW	0	10.6	0	5.1	0.1	4.5	5.1	0.1	4.5	0	8.6	0	5.1	0.9	4.6	0	0	0.6
REF. NO.	Q6607			Q6610			Q6612			Q6701			Q6702			Q6703		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	5.1	0	5.1	2.5	5.1	9.5	0.1	9.5	13.7	0	13.6	0	0	0	0.1	0	0
PLAY	0	5.1	0	5.1	2.5	5.1	9.5	0.2	9.5	13.5	0	13.4	0	0	0	0	0	0
REC	0	5.1	0	5.1	2.5	5.1	9.5	0.4	9.5	13.5	13.4	12.7	0	0	0.6	5.3	13.2	6.0
F.F	0	5.1	0	5.1	2.5	5.1	9.5	0.5	9.5	13.6	0	13.5	0	0	0	0	0	0
REW	0	5.1	0	5.1	2.5	5.1	9.5	0.2	9.5	13.6	0	13.5	0	0	0	0	0	0
REF. NO.	Q6704			Q6705			Q6706			Q6707			Q6708			Q6709		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	0	0	0	0	0.7	0	0	0	0	0	0	0	0	0	0	2.9	0
PLAY	0	0	0	0	0	0.7	0	0	0	0	0	0	0	0	0	0	2.9	0
REC	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	2.9	0
F.F	0	0	0	0	0	0.7	0	0	0	0	0	0	0	0	0	0	2.9	0
REW	0	0	0	0	0	0.7	0	0	0	0	0	0	0	0	0	0	2.9	0
REF. NO.	Q6710			Q6711			Q6712			Q6713			Q6714			Q6715		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	2.9	0	0	2.9	0	0	2.9	0	0	2.9	0	0	0	0.6	0	0	0.6
PLAY	0	2.9	0	0	2.9	0	0	2.9	0	0	2.9	0	0	0	0.6	0	0	0.6
REC	0	0.3	0	0	2.9	0	0	2.9	0	0	2.9	0	0	0	4.9	0	0	0.6
F.F	0	2.9	0	0	2.9	0	0	2.9	0	0	2.9	0	0	0	0.6	0	0.1	0.6
REW	0	2.9	0	0	2.9	0	0	2.9	0	0	2.9	0	0	0	0.6	0	0	0.6
REF. NO.	Q6716																	
MODE	E	C	B															
STOP	0	0	0.6															
PLAY	0	0	0.6															
REC	0	0	0.6															
F.F	0	0	0.6															
REW	0	0	0.6															
REF. NO.	QR6601			QR6602			QR6603			QR6604			QR6605			QR6606		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	5.1	−2.1	5.1	0	0	4.5	0	9.5	0	0	3.7	0.1	0	0	5.1	0	0	0
PLAY	5.1	−2.3	5.1	0	0	4.5	0	9.5	0	0	0	5.1	0	0	5.1	0	0.1	0
REC	5.1	−2.7	5.1	0	6.2	0.1	0.3	0	5.9	0	3.7	0.2	0	0	5.1	0	0	5.1
F.F	5.1	−2.4	5.1	0	0	4.5	0	9.5	0	0	3.7	0.2	0	0	5.1	0	0.1	0
REW	5.1	−2.4	5.1	0	0	4.5	0	9.5	0	0	3.7	0.2	0	0	5.1	0	0	0
REF. NO.	QR6608			QR6610			QR6612			QR6613			QR6614			QR6615		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	0	4.7	9.5	0	9.5	0	0	4.5	5.1	0	4.8	0	0	0	0	0	1.8
PLAY	0	0	4.7	9.5	0	9.5	0	0	4.5	5.1	0	4.8	0	0	0	0	0	1.8
REC	0	0	4.7	9.5	0	9.5	0	0	4.5	5.1	4.9	3.0	4.9	0	4.8	0	0	0.1
F.F	0	0	4.7	9.5	0	9.5	0	0	4.5	5.1	0	4.8	0	0	0	0	0	1.8
REW	0	0	4.7	9.5	0	9.5	0	0	4.5	5.1	0	4.8	0	0	0	0	0	1.8
REF. NO.	QR6701			QR6702			QR6703			QR6704			QR6705					
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B			
STOP	0	13.5	0	0	0	5.0	0	1.9	0	0	9.5	0	0	9.5	0			
PLAY	0	13.5	0	0	0.1	5.0	0	1.9	0	0	9.5	0	0	9.5	0			
REC	0	13.5	0	0	0	5.0	0	0.1	4.9	0	0	4.9	0	0	5.0			
F.F	0	13.5	0	0	0	5.0	0	1.9	0	0	9.5	0	0	9.5	0			
REW	0	13.5	0	0	0	5.0	0	1.9	0	0	9.5	0	0	9.5	0			

MEASUREMENT TAPE...S-VHS CASSETTE TAPE

SUB SYSTEM CONTROL (1)/(2) SCHEMATIC DIAGRAM

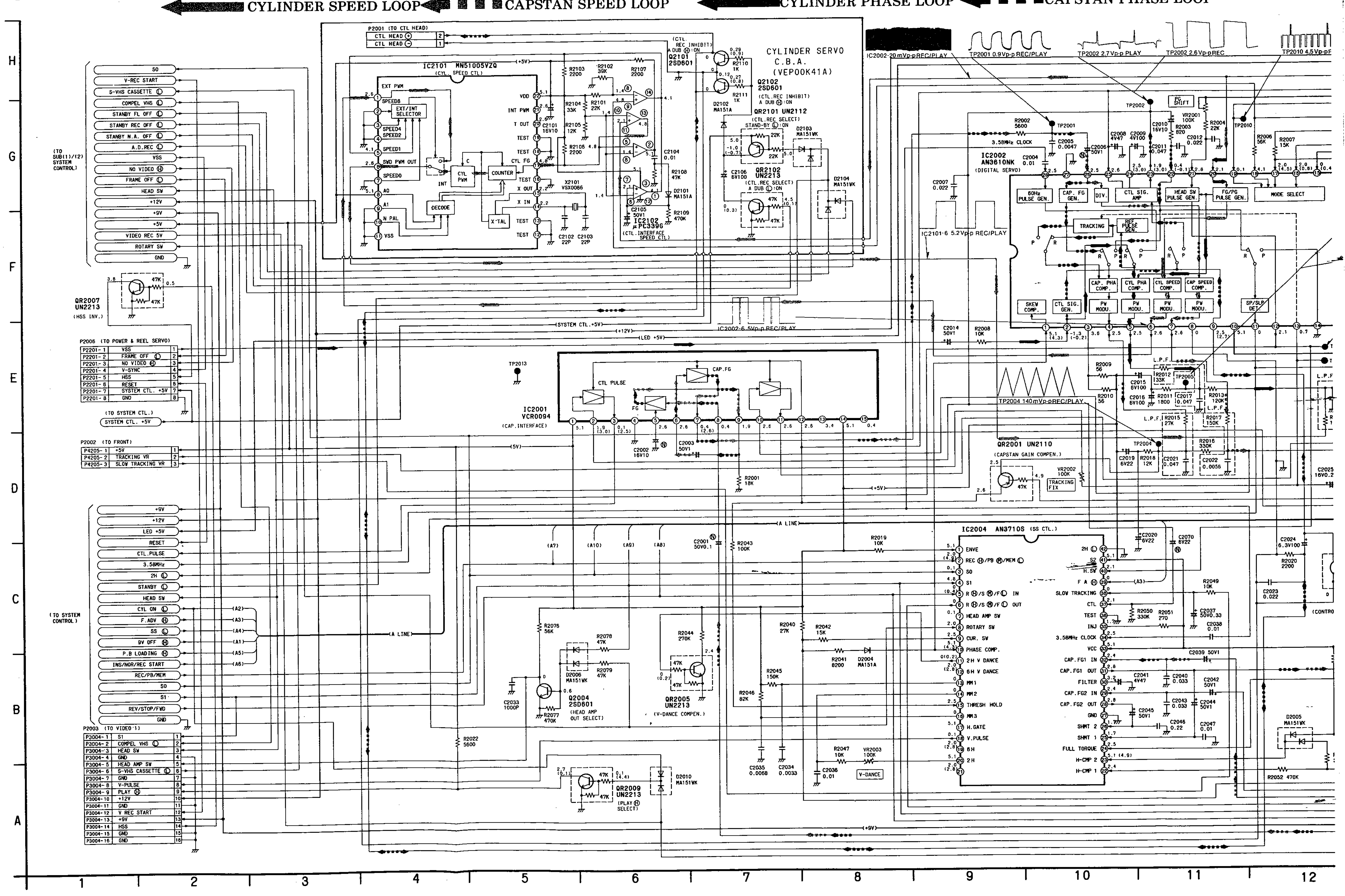

G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
QR1 UN2213 (FLYING ERASE ON/OFF SELECT)
Q1 2SB644 (12V OUTPUT AT FL ERASE ON)
Q2 2SC2188 (7.5MHz OSC)
Q3 2SD601 (AMP)
Q4 2SD601 (INVERTER AMP)
Q5 2SD1328 (FLYING ERASE CONTROL)
Q6 2SD601 (ERASE CURR. AMP)
Q7 2SB710 (ERASE SIGNAL OUT)
Q8 2SD602 (ERASE SIGNAL OUT)
TP6703 5.3Vp-pREC
P6701 (TO FLYING ERASE HEAD)
1 FL.E HEAD (S)
2 FL.E HEAD (F)
3 GND
IC1 MN4040BS (REF.PULSE GEN.(DIV.))
⊕:8PULSE(268.16μsec)
⊕:2PULSE(67.04μsec)
⊕:4PULSE(134.08μsec)
⊕:32PULSE (1072.64μsec)
⊕:128PULSE (4290.56μsec)
IC6 MN4081BS (TIMING PULSE GEN.)
IC9 (INV.)
IC9 (INV.OUT)
IC2 MN4013BS (TIMING INTERFACE)
IC4 MN4013BS (FLYING ERASE TIMING)
IC5 MN4538BS (FLYING ERASE TIMING)
IC7 (FLYING ERASE TIMING)
IC8 MN4011BS (FLYING ERASE TIMING)
(TO HD AUDIO) HD AUDIO OFF ⊕
IC7 MN4081BS (HD AUDIO REC TIMING)
IC3 MN4013BS (VIDEO REC TIMING)
QR2 UN2215 (HD AUDIO REC TIMING)
QR3 UN2215 (VIDEO REC TIMING OUT)
QR4 UN2215 (VIDEO REC TIMING OUT)
QR5 UN2215 (VIDEO REC TIMING OUT)
REC⊕ V-V/E-E SWITCHING AT H.SW RISING EDGE
IC6706-4 48mVp-pREC
DIFFERENTIAL
IC9 MN4096μBS (INV.)
Q9 2SD601 (RESET PULSE GEN.)
Q10 2SD601 (RESET PULSE GEN.)
Q11 2SD601 (RESET PULSE GEN.)
Q12 2SD601 (RESET PULSE GEN.)
Q13 2SD601 (RESET: ⊕ OUT)
Q14 2SD601 (RESET: ⊕ OUT)
Q15 2SD601 (RESET: ⊕ OUT)
POWER ON RESET
D1 MA151A
D2 11Z3BLL (3V)
Q16 2SD601 (RESET OUT AT POWER ON)
IC9 (INV.)
IC1 IC3 IC5 IC7 IC9
TP1
TP3
SUB SYSTEM CONTROL(2) REF.NO.6700 SERIES
SUB SYSTEM CONTROL(1) REF.NO.6600 SERIES
10P/14P SW
SW6607
QR6607 UN221E
IC6606 μPC393G
SW6608
POLARITY SW
P6602 (TO FULL ERASE HEAD)
GND
FULL ERASE 9V
QR14 UN2113 (FLYING ERASE OUTPUT)
(TO SYSTEM CTL.)
CURR EMPH ⊖
298KHz
SAFETY
FULL ERASE ⊖
VIDEO REC ⊖
A D-REC ⊖
D-REC ⊖
VIDEO E-E ⊕
+10V
AUDIO MUTE ⊕
AUDIO E-E ⊕
CAMERA IN ⊖
CAMERA VIDEO IN ⊕
STAND-BY ⊕/A MONI.
VTR START ⊕
TALLY & CLK
COMPEL VHS ⊖
(TO NORMAL AUDIO)
DOLBY ON ⊕
+10V
AUDIO MUTE ⊕
AUDIO E-E ⊕
+9V
CAMERA AUDIO CH1 IN
GND
DOLBY MUTE ⊕
A-DUB ⊕
A-DUB MUTE ⊕
A D-REC 9V
VHS CASSETTE ⊖
A-DUB HD MUTE ⊕
D12 MA151K
D2 MA151
D LINE
A LINE
P6603 (TO FRONT)
P4702-1 CAMERA MONITOR
P4702-2 S-VHS ⊕
P4702-3 GND
P6604 (TO CAMERA 14P CONNECTOR)
STANDBY ⊕/A MONI.
CAMERA CH1 IN
GND (AUDIO)
GND (AUDIO)
GND (VIDEO)
VIDEO IN/OUT (10P)
C-COMPN IN
BATT.INDICATE
VTR START
REC & WARNING
GND (VIDEO)
VIDEO OUT
QR1 UN2112 (AUDIO MUTING SELECT)
QR8 UN2215 (TALLY OUTPUT)
QR15 UN2213 (INV.)
P6606 (TO CASSETTE SW)
VHS CASSETTE ⊖
GND
WARING GOES ⊖ BEFORE 2～3MINUTES FROM THE TAPE END
QR10 UN2112 (S-VHS CASSETTE DET.)
(SYSTEM CTL.+5V)
(TO SYSTEM CTL.)
RESET ⊕
DATA (2)
CLOCK (2)
SYSTEM CTL.+5V
NOTE: DO NOT USE IN THE PART



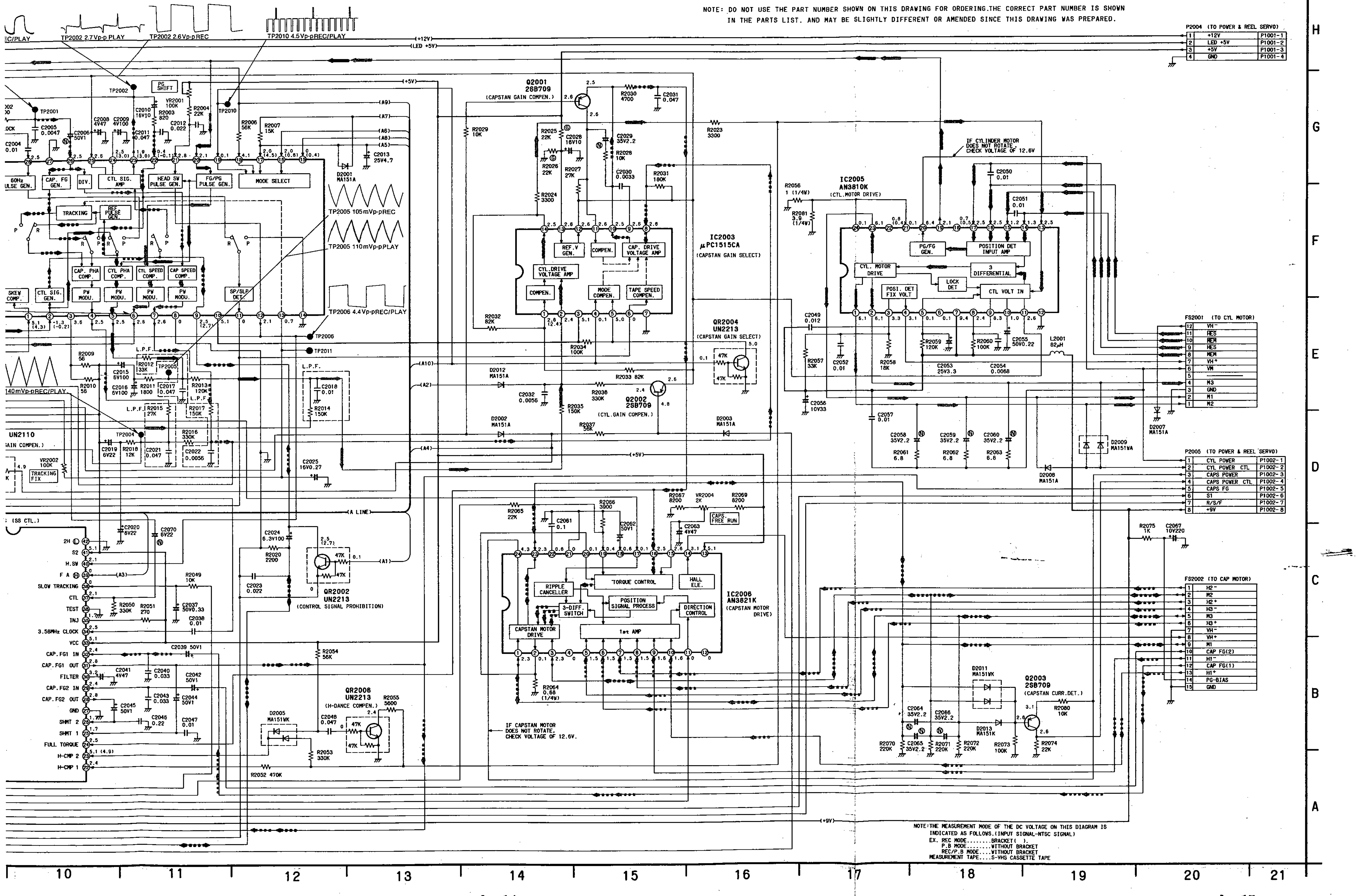
TROL(1) REF.NO.6600 SERIES

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST. AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

SERVO SCHEMATIC DIAGRAM



■CAPSTAN PHASE LOOP

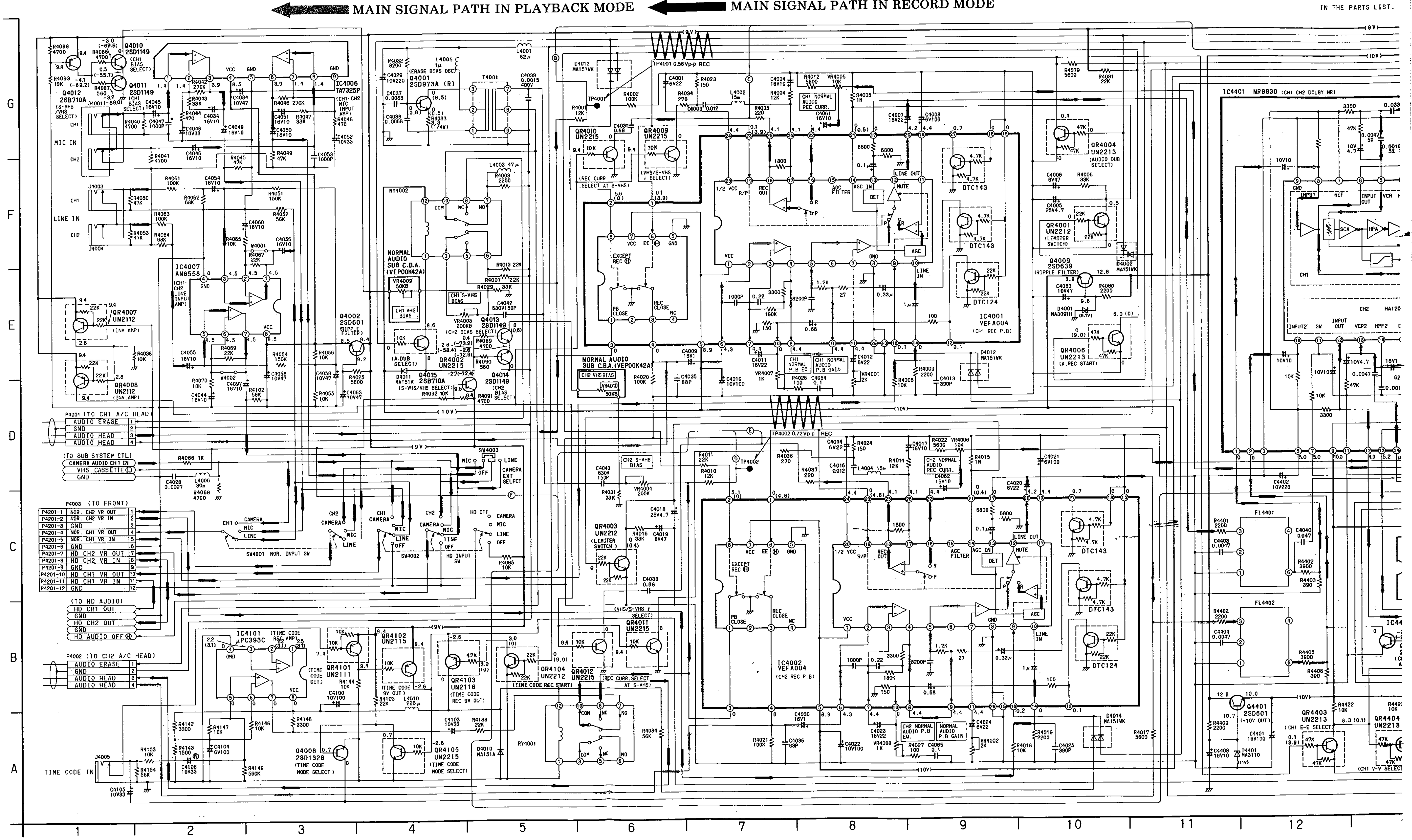


NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST. AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS INDICATED AS FOLLOWS.(INPUT SIGNAL-NTSC SIGNAL)
EX. REC MODE........BRACKET( ).
P.B MODE..........WITHOUT BRACKET
REC/P.B MODE....WITHOUT BRACKET
MEASUREMENT TAPE....S-VHS CASSETTE TAPE

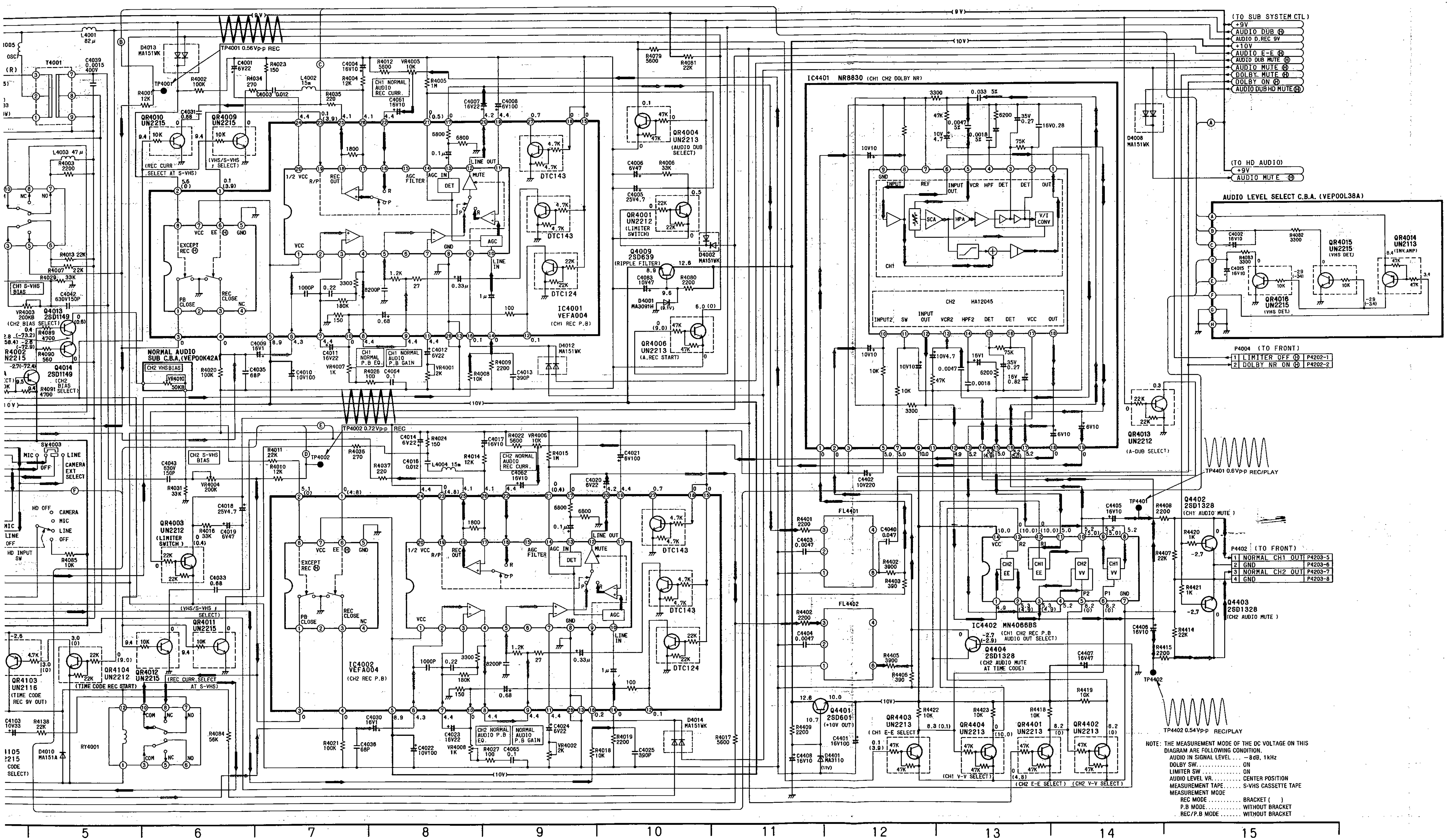
NORMAL AUDIO SCHEMATIC DIAGRAM

NOTE: DO NOT USE THE PART IN THE PARTS LIST.


MAIN SIGNAL PATH IN PLAYBACK MODE
MAIN SIGNAL PATH IN RECORD MODE
MIC IN
LINE IN
CH1
CH2
J4003
J4004
J4005
TIME CODE IN
IC4006 TA7325P (CH1·CH2 MIC INPUT AMP)
IC4007 AN6558 (CH1·CH2 LINE INPUT AMP)
IC4101 μPC393C (TIME CODE REC AMP)
IC4001 VEFA004 (CH1 REC P.B)
IC4002 VEFA004 (CH2 REC P.B)
IC4401 NR8830 (CH1 CH2 DOLBY NR)
Q4010 2SD1149 (CH1 BIAS SELECT)
Q4011 2SD1149 (CH1 BIAS SELECT)
Q4012 2SB710A (S-VHS /VHS SELECT)
Q4001 2SD973A (R) (ERASE BIAS OSC)
Q4002 2SD601 (RIPPLE FILTER)
Q4013 2SD1149 (CH2 BIAS SELECT)
Q4014 2SD1149 (CH2 BIAS SELECT)
Q4015 2SB710A (S-VHS/VHS SELECT)
Q4008 2SD1328 (TIME CODE MODE SELECT)
Q4009 2SD639 (RIPPLE FILTER)
Q4401 2SD601 (+10V OUT)
QR4007 UN2112 (INV. AMP)
QR4008 UN2112 (INV. AMP)
QR4002 UN2215 (A.DUB SELECT)
QR4010 UN2215 (REC CURR SELECT AT S-VHS)
QR4009 UN2215 (VHS/S-VHS SELECT)
QR4004 UN2213 (AUDIO DUB SELECT)
QR4001 UN2212 (LIMITER SWITCH)
QR4006 UN2213 (A.REC START)
QR4003 UN2212 (LIMITER SWITCH)
QR4011 UN2215 (VHS/S-VHS SELECT)
QR4012 UN2215 (REC CURR. SELECT AT S-VHS)
QR4101 UN2111 (TIME CODE DET)
QR4102 UN2115
QR4103 UN2116 (TIME CODE REC 9V OUT)
QR4104 UN2212 (TIME CODE REC START)
QR4105 UN2215 (TIME CODE MODE SELECT)
QR4403 UN2213 (CH1 E-E SELECT)
QR4404 UN2213 (CH1 V-V SELECT)
DTC143
DTC124
D4013 MA151WK
D4012 MA151WK
D4014 MA151WK
D4002 MA151WK
D4001 MA3091H
D4010 MA151A
D4011 MA151K
D4401 MA3110
T4001
L4001 82μ
L4003 47μ
L4005 1μ
RY4001
RY4002
NORMAL AUDIO SUB C.B.A. (VEP00K42A)
VR4009 50KB
VR4010 50KB
CH1 VHS BIAS
CH1 S-VHS BIAS
CH2 VHS BIAS
CH2 S-VHS BIAS
TP4001 0.56Vp-p REC
TP4002 0.72Vp-p REC
FL4401
FL4402
P4001 (TO CH1 A/C HEAD)
AUDIO ERASE
GND
AUDIO HEAD
AUDIO HEAD
(TO SUB SYSTEM CTL)
CAMERA AUDIO CH1 IN
VHS CASSETTE
GND
P4003 (TO FRONT)
P4201-1 NOR. CH2 VR OUT
P4201-2 NOR. CH2 VR IN
P4201-3 GND
P4201-4 NOR. CH1 VR OUT
P4201-5 NOR. CH1 VR IN
P4201-6 GND
P4201-7 HD CH2 VR OUT
P4201-8 HD CH2 VR IN
P4201-9 GND
P4201-10 HD CH1 VR OUT
P4201-11 HD CH1 VR IN
P4201-12 GND
(TO HD AUDIO)
HD CH1 OUT
GND
HD CH2 OUT
GND
HD AUDIO OFF
P4002 (TO CH2 A/C HEAD)
SW4001 NOR. INPUT SW
SW4002 HD INPUT SW
SW4003 CAMERA EXT SELECT
CAMERA
MIC
LINE
OFF
(9V)
(10V)
A
B
C
D
E
F
G
1
2
3
4
5
6
7
8
9
10
11
12

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST. AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

L PATH IN PLAYBACK MODE ← MAIN SIGNAL PATH IN RECORD MODE


IC4001 VEFA004 (CH1 REC P.B)
IC4002 VEFA004 (CH2 REC P.B)
IC4401 NR8830 (CH1 CH2 DOLBY NR)
HA12045
IC4402 MN4066BS (CH1 CH2 REC P.B AUDIO OUT SELECT)
NORMAL AUDIO SUB C.B.A. (VEP00K42A)
AUDIO LEVEL SELECT C.B.A. (VEP00L38A)
FL4401
FL4402
RY4001
T4001
SW4003
QR4010 UN2215 (REC CURR SELECT AT S-VHS)
QR4009 UN2215 (VHS/S-VHS SELECT)
QR4004 UN2213 (AUDIO DUB SELECT)
QR4001 UN2212 (LIMITER SWITCH)
Q4009 2SD639 (RIPPLE FILTER)
QR4006 UN2213 (A.REC START)
QR4003 UN2212 (LIMITER SWITCH)
QR4011 UN2215 (VHS/S-VHS SELECT)
QR4012 UN2215 (REC CURR.SELECT AT S-VHS)
QR4104 UN2212 (TIME CODE REC START)
QR4103 UN2116 (TIME CODE REC 9V OUT)
Q4013 2SD1149 (CH2 BIAS SELECT)
Q4014 2SD1149 (CH2 BIAS SELECT)
QR4013 UN2212 (A-DUB SELECT)
Q4401 2SD601 (+10V OUT)
QR4403 UN2213 (CH1 E-E SELECT)
QR4404 UN2213 (CH1 V-V SELECT)
QR4401 UN2213 (CH2 E-E SELECT)
QR4402 UN2213 (CH2 V-V SELECT)
Q4404 2SD1328 (CH2 AUDIO MUTE AT TIME CODE)
Q4402 2SD1328 (CH1 AUDIO MUTE)
Q4403 2SD1328 (CH2 AUDIO MUTE)
QR4015 UN2215 (VHS DET)
QR4016 UN2215 (VHS DET)
QR4014 UN2113 (INV.AMP)
TP4001 0.56Vp-p REC
TP4002 0.72Vp-p REC
TP4401 0.6Vp-p REC/PLAY
TP4402 0.54Vp-p REC/PLAY
(TO SUB SYSTEM CTL)
+9V
AUDIO DUB Ⓗ
AUDIO D.REC 9V
+10V
AUDIO E-E Ⓗ
AUDIO DUB MUTE Ⓗ
AUDIO MUTE Ⓗ
DOLBY MUTE Ⓗ
DOLBY ON Ⓗ
AUDIO DUB HD MUTE Ⓗ
(TO HD AUDIO)
+9V
AUDIO MUTE Ⓗ
P4004 (TO FRONT)
1 LIMITER OFF Ⓗ P4202-1
2 DOLBY NR ON Ⓗ P4202-2
P4402 (TO FRONT)
1 NORMAL CH1 OUT P4203-5
2 GND P4203-6
3 NORMAL CH2 OUT P4203-7
4 GND P4203-8
5
6
7
8
9
10
11
12
13
14
15

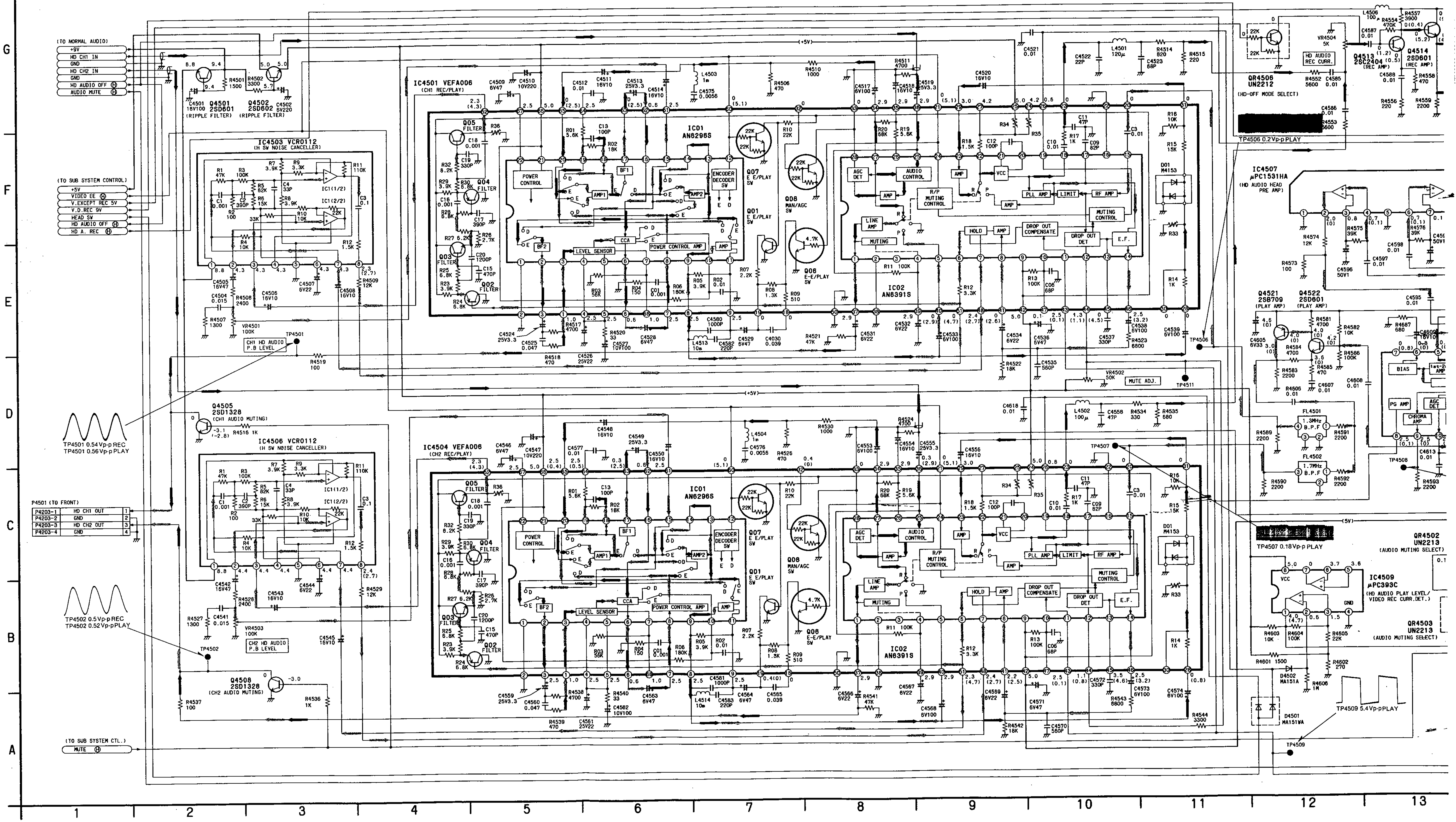
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM ARE FOLLOWING CONDITION.
AUDIO IN SIGNAL LEVEL ... −8dB, 1kHz
DOLBY SW. .... ON
LIMITER SW .... ON
AUDIO LEVEL VR. .... CENTER POSITION
MEASUREMENT TAPE...... S-VHS CASSETTE TAPE
MEASUREMENT MODE
REC MODE .... BRACKET ( )
P.B MODE. .... WITHOUT BRACKET
REC/P.B MODE .... WITHOUT BRACKET

HD AUDIO SCHEMATIC DIAGRAM

MAIN SIGNAL PATH IN RECORD MODE

MAIN SIGNAL PATH IN PLAYBACK MODE

NOTE: DO NOT USE THI
IN THE PARTS L



[redacted]

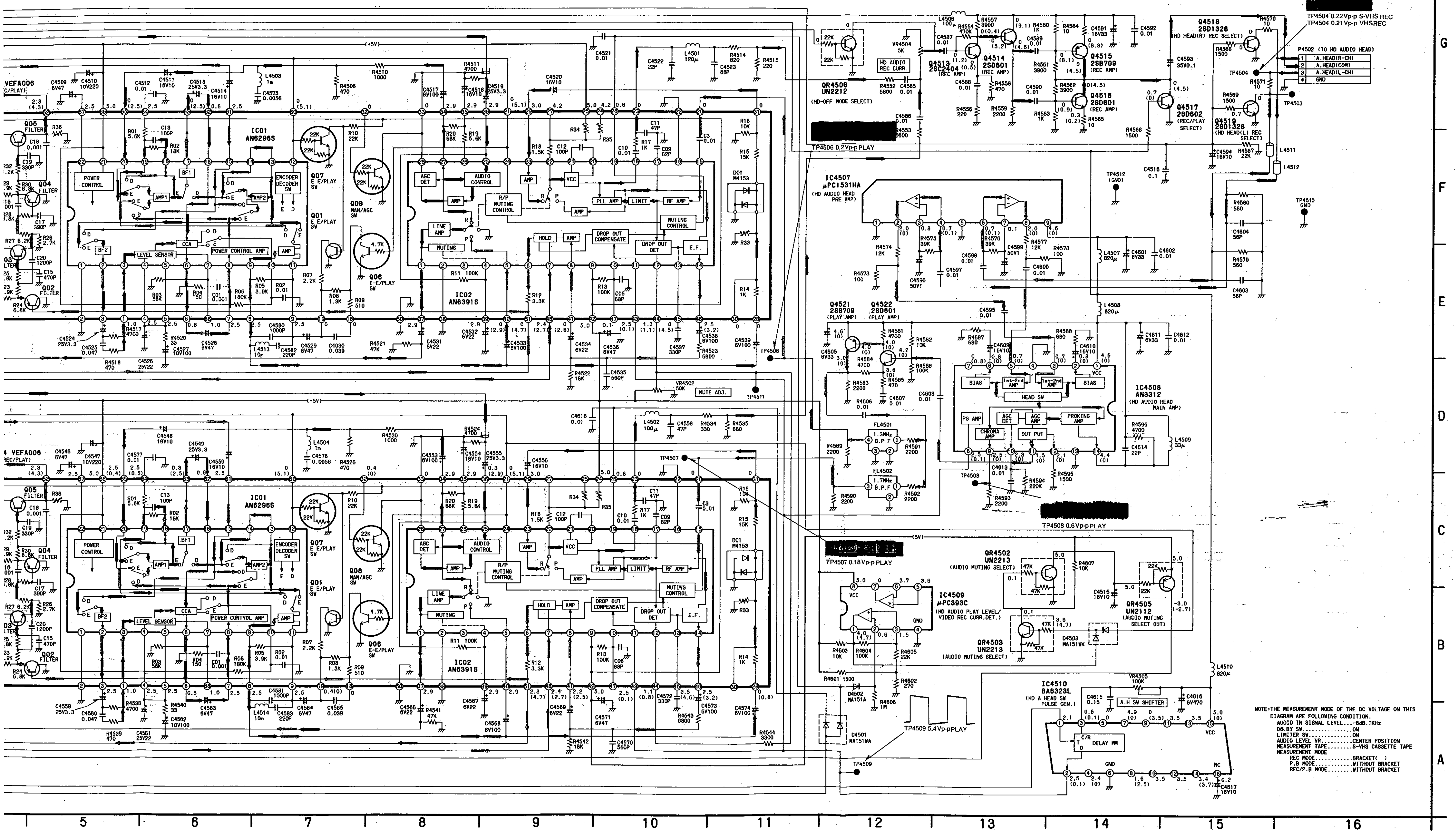
HD AUDIO
NORMAL AUDIO

HD AUDIO
NORMAL AUDIO

SIGNAL PATH IN RECORD MODE
SIGNAL PATH IN PLAYBACK MODE

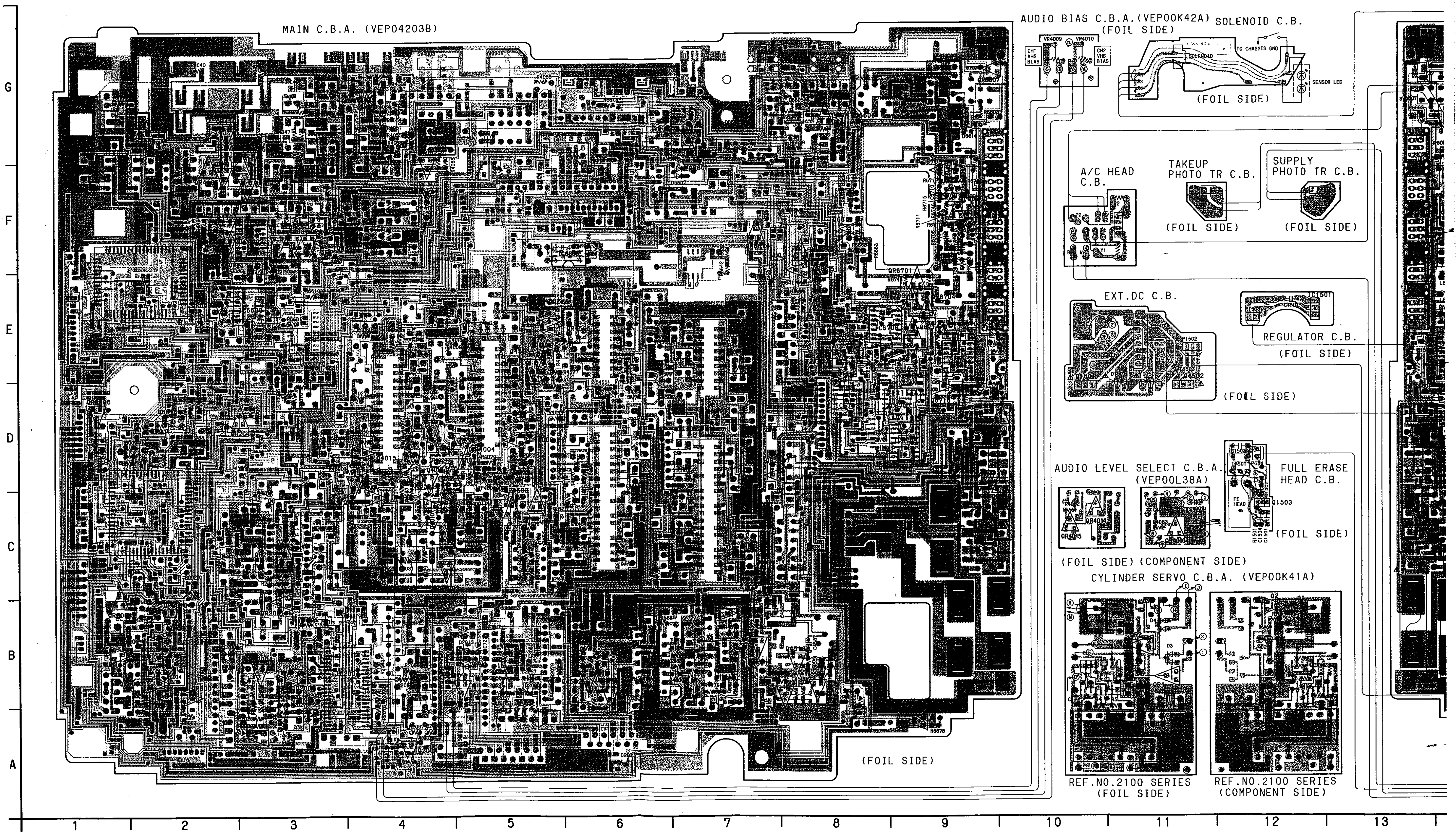
NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST. AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

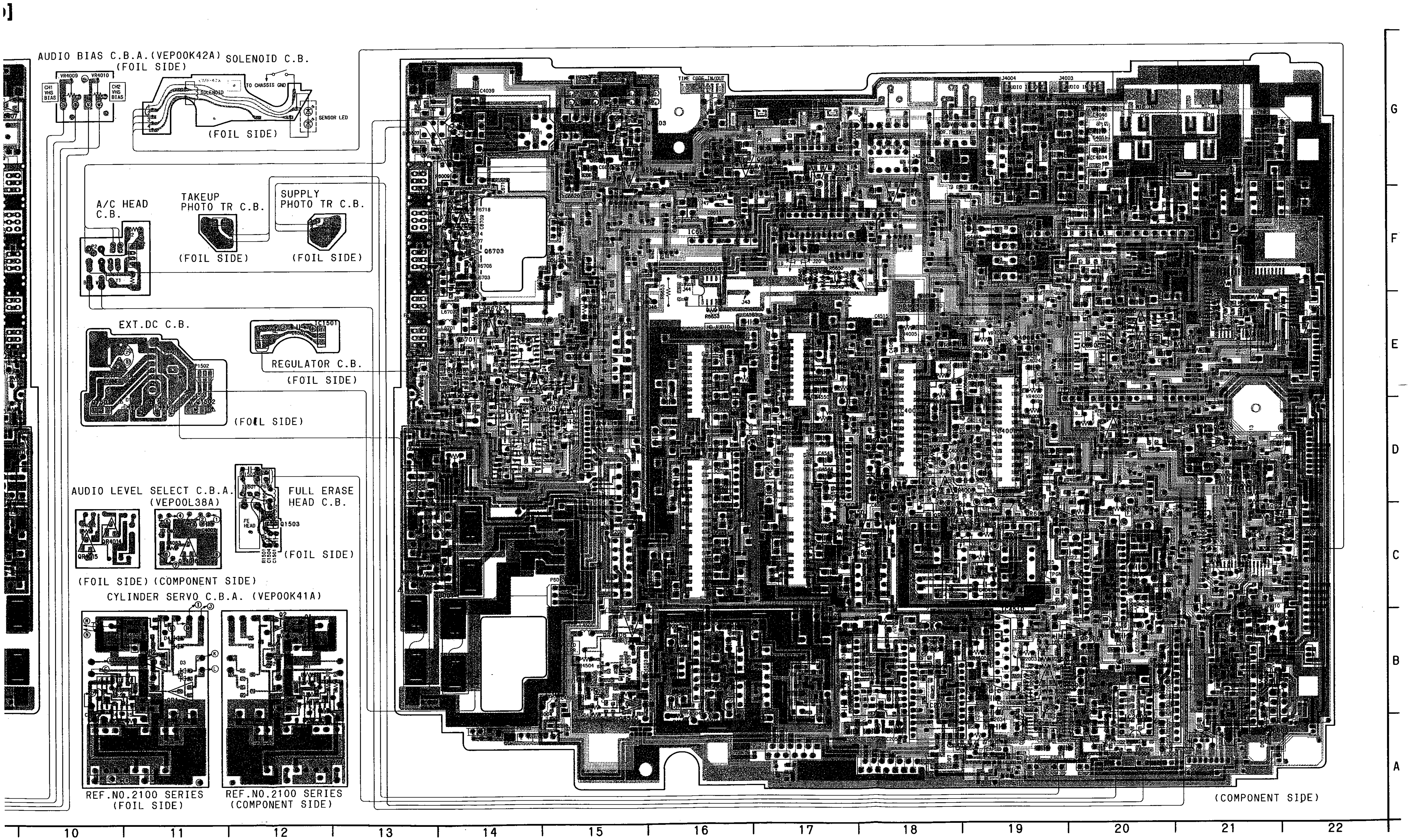
[redacted]

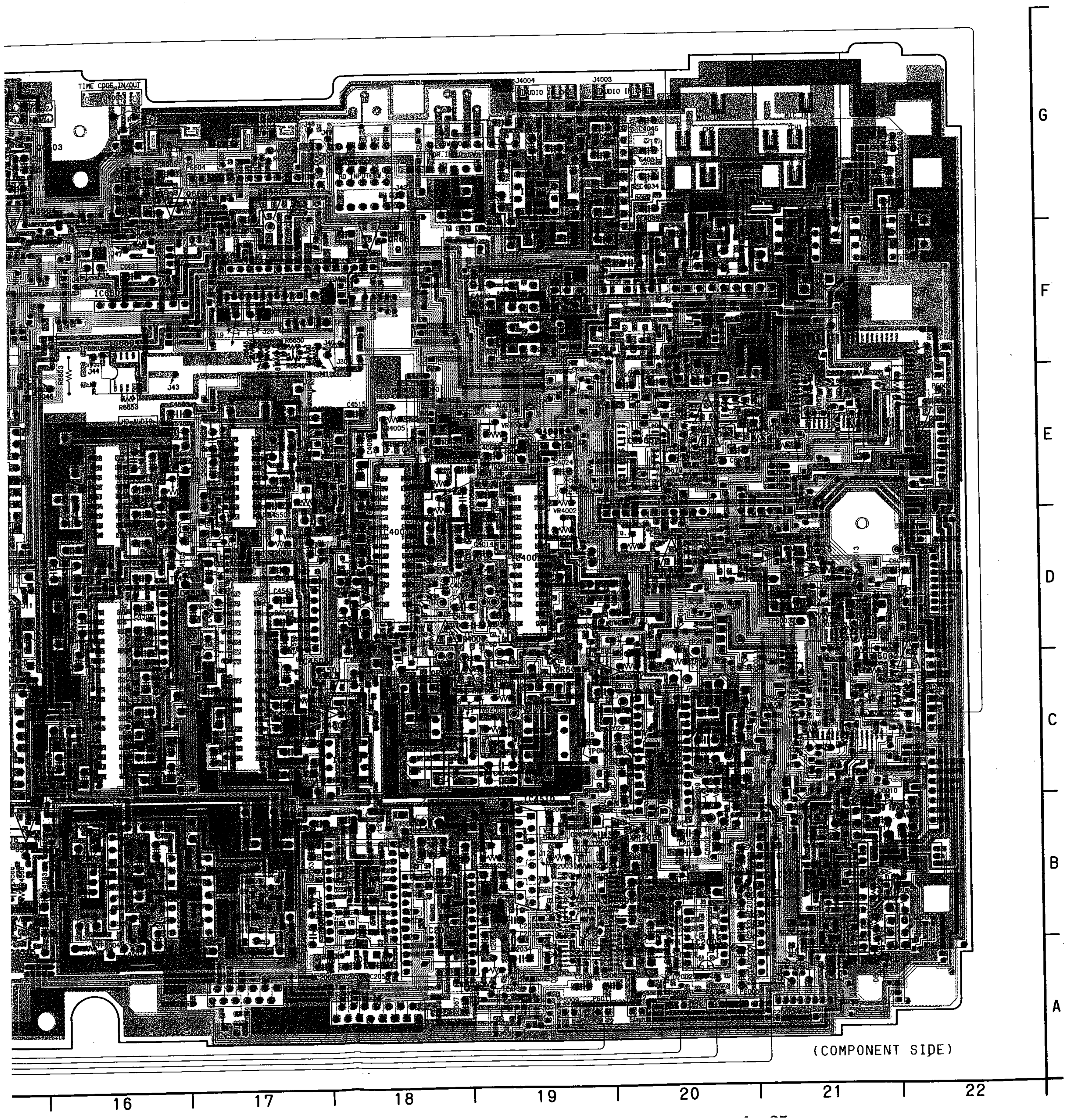


NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM ARE FOLLOWING CONDITION.
AUDIO IN SIGNAL LEVEL...-8dB.1KHz
DOLBY SW.................ON
LIMITER SW...............ON
AUDIO LEVEL VR...........CENTER POSITION
MEASUREMENT TAPE.........S-VHS CASSETTE TAPE
MEASUREMENT MODE
REC MODE............BRACKET( )
P.B MODE............WITHOUT BRACKET
REC/P.B MODE........WITHOUT BRACKET

MAIN C.B.A. (VEP04203B) [System Control, Sub System Control (1)/(2), Servo, Normal Audio, HD Audio]




AUDIO BIAS C.B.A.(VEP00K42A)
(FOIL SIDE)
SOLENOID C.B.
(FOIL SIDE)
SENSOR LED
TO CHASSIS GND
CH1 VHS BIAS
CH2 VHS BIAS
VR4009
VR4010
A/C HEAD C.B.
TAKEUP PHOTO TR C.B.
(FOIL SIDE)
SUPPLY PHOTO TR C.B.
(FOIL SIDE)
EXT.DC C.B.
(FOIL SIDE)
REGULATOR C.B.
(FOIL SIDE)
AUDIO LEVEL SELECT C.B.A.
(VEP00L38A)
(FOIL SIDE) (COMPONENT SIDE)
FULL ERASE HEAD C.B.
(FOIL SIDE)
CYLINDER SERVO C.B.A. (VEP00K41A)
REF.NO.2100 SERIES
(FOIL SIDE)
REF.NO.2100 SERIES
(COMPONENT SIDE)
(COMPONENT SIDE)
TIME CODE IN/OUT
J4004
J4003
Q6703
IC1501
P1502
Q1503
10
11
12
13
14
15
16
17
18
19
20
21
22
A
B
C
D
E
F
G



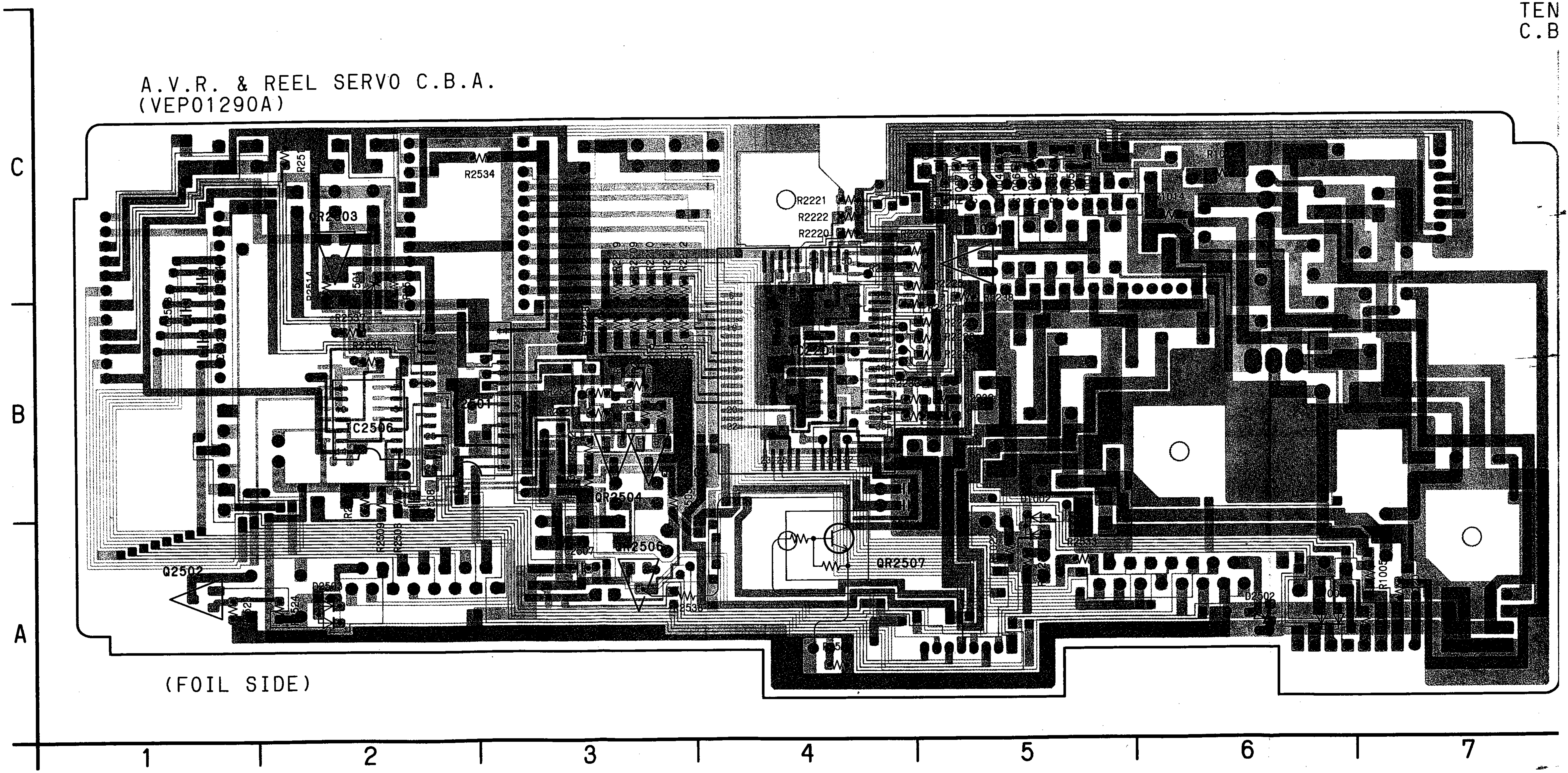
MAIN C.B.A.

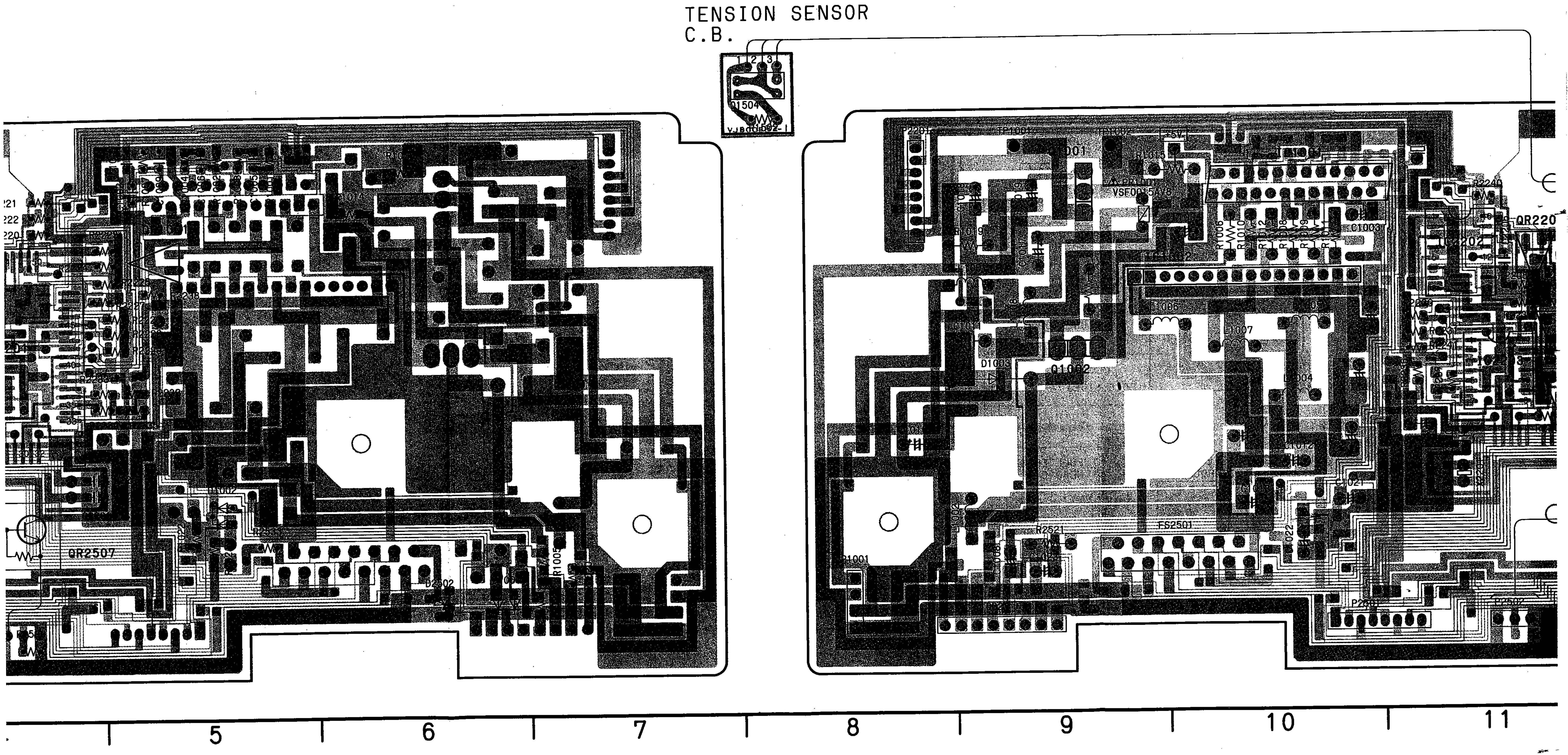
Servo Section, Cylinder Servo C.B.A.		
Transistor		
Q2001	C-3	Ⓕ
Q2002	A-3	Ⓕ
Q2003	B-5	Ⓕ
Q2004	A-4	Ⓕ
Q2101	B-12	Ⓒ
Q2102	B-12	Ⓒ
Transistor & Resistor		
QR2001	B-3	Ⓕ
QR2002	C-3	Ⓕ
QR2004	B-3	Ⓕ
QR2005	B-19	Ⓒ
QR2006	B-20	Ⓒ
QR2007	D-7	Ⓕ
QR2009	D-2	Ⓕ
QR2101	B-11	Ⓕ
QR2102	B-11	Ⓕ
Integrated Circuit		
IC2001	B-21	Ⓒ
IC2002	C-20	Ⓒ
IC2003	B-20	Ⓒ
IC2004	B-3	Ⓕ
IC2005	B-18	Ⓒ
IC2006	B-18	Ⓒ
IC2101	A-11	Ⓕ
IC2102	B-10	Ⓕ
Test Point		
TP2001	B-20	Ⓒ
TP2002	B-20	Ⓒ
TP2003	C-19	Ⓒ
TP2004	B-20	Ⓒ
TP2005	C-20	Ⓒ
TP2006	C-19	Ⓒ
TP2007	C-20	Ⓒ
TP2008	C-20	Ⓒ
TP2009	C-20	Ⓒ
TP2010	C-20	Ⓒ
TP2011	D-20	Ⓒ
TP2012	C-19	Ⓒ
Adjustment		
VR2001	D-20	Ⓒ
VR2002	D-20	Ⓒ
VR2003	B-19	Ⓒ
VR2004	A-19	Ⓒ
Connector		
P2001	B-11	Ⓒ
P2002	B-22	Ⓒ
P2003	C-15	Ⓒ
P2004	D-22	Ⓒ
P2005	C-22	Ⓒ
P2006	A-21	Ⓒ
FS2001	A-17	Ⓒ
FS2002	A-18	Ⓒ
Normal Audio Section, Audio Bias C.B.A.		
Transistor		
Q4001	G-14	Ⓒ
Q4002	G-4	Ⓕ
Q4008	G-2	Ⓕ
Q4009	E-19	Ⓒ
Q4010	C-4	Ⓕ
Q4011	D-4	Ⓕ
Q4012	D-4	Ⓕ
Q4013	C-4	Ⓕ
Q4014	D-3	Ⓕ
Q4015	D-4	Ⓕ
Q4401	F-3	Ⓕ
Q4402	F-2	Ⓕ
Q4403	F-2	Ⓕ
Q4404	F-3	Ⓕ
Transistor & Resistor		
QR4001	D-5	Ⓕ
QR4002	C-4	Ⓕ
QR4003	D-4	Ⓕ
QR4004	D-5	Ⓕ
QR4006	D-3	Ⓕ
QR4007	C-18	Ⓒ
QR4008	D-18	Ⓒ
QR4009	D-5	Ⓕ
QR4010	D-18	Ⓒ
QR4011	D-4	Ⓕ
QR4012	D-4	Ⓕ
QR4013	F-4	Ⓕ
QR4014	C-10	Ⓕ
QR4015	E-5	Ⓕ
QR4016	E-4	Ⓕ
QR4101	G-3	Ⓕ
QR4102	G-2	Ⓕ
QR4103	F-2	Ⓕ
QR4104	G-3	Ⓕ
QR4105	G-2	Ⓕ
QR4401	F-3	Ⓕ
QR4402	F-3	Ⓕ
QR4403	F-3	Ⓕ
QR4404	G-3	Ⓕ
Integrated Circuit		
IC4001	E-18	Ⓒ
IC4002	D-19	Ⓒ
IC4006	G-20	Ⓒ
IC4007	G-19	Ⓒ
IC4101	G-21	Ⓒ
IC4401	F-19	Ⓒ
IC4402	F-3	Ⓕ
Test Point		
TP4001	D-5	Ⓕ
TP4002	C-19	Ⓒ
TP4001	D-18	Ⓒ
Adjustment		
VR4001	E-18	Ⓒ
VR4002	E-19	Ⓒ
VR4003	C-19	Ⓒ
VR4004	C-19	Ⓒ
VR4005	E-18	Ⓒ
VR4006	E-19	Ⓒ
VR4007	E-18	Ⓒ
VR4008	D-19	Ⓒ
VR4009	H-10	Ⓕ
VR4010	H-10	Ⓕ
Connector		
P4001	C-18	Ⓒ
P4002	C-19	Ⓒ
P4003	F-17	Ⓒ
P4004	G-17	Ⓒ
P4402	F-20	Ⓒ
HD Audio Section		
Transistor		
Q4501	D-17	Ⓒ
Q4502	C-17	Ⓒ
Q4505	E-5	Ⓕ
Q4508	E-5	Ⓕ
Q4513	B-8	Ⓕ
Q4514	B-8	Ⓕ
Q4515	B-15	Ⓒ
Q4516	B-7	Ⓕ
Q4517	B-7	Ⓕ
Q4518	C-7	Ⓕ
Q4519	B-7	Ⓕ
Q4521	B-6	Ⓕ
Q4522	B-5	Ⓕ
Transistor & Resistor		
QR4502	E-5	Ⓕ
QR4503	D-5	Ⓕ
QR4505	E-6	Ⓕ
QR4506	B-15	Ⓒ
Integrated Circuit		
IC4501	D-16	Ⓒ
IC4503	D-16	Ⓒ
IC4504	D-17	Ⓒ
IC4506	D-17	Ⓒ
IC4507	B-16	Ⓒ
IC4508	B-16	Ⓒ
IC4509	C-18	Ⓒ
IC4510	C-19	Ⓒ
Test Point		
TP4401	F-20	Ⓒ
TP4402	F-20	Ⓒ
TP4501	E-18	Ⓒ
TP4502	F-18	Ⓒ
TP4503	B-16	Ⓒ
TP4504	B-16	Ⓒ
TP4506	C-17	Ⓒ
TP4507	C-17	Ⓒ
TP4508	B-16	Ⓒ
TP4509	C-18	Ⓒ
TP4510	A-17	Ⓒ
TP4511	D-17	Ⓒ
Adjustment		
VR4501	E-16	Ⓒ
VR4502	E-17	Ⓒ
VR4503	E-17	Ⓒ
VR4504	B-15	Ⓒ
VR4505	B-19	Ⓒ
Connector		
P4402	F-20	Ⓒ
P4501	F-17	Ⓒ
P4502	B-16	Ⓒ
System Control Section, Regulator, EXT DC C.B.		
Transistor		
Q1501	E-10	Ⓕ
Q1502	E-11	Ⓕ
Q6001	C-14	Ⓒ
Q6002	D-21	Ⓒ
Q6005	C-21	Ⓒ
Q6006	B-2	Ⓕ
Q6007	B-22	Ⓒ
Q6008	A-21	Ⓒ
Q6009	D-14	Ⓒ
Q6010	D-9	Ⓕ
Q6011	B-2	Ⓕ
Q6012	D-14	Ⓒ
Q6013	D-20	Ⓒ
Q6014	D-21	Ⓒ
Q6015	D-21	Ⓒ
Q6016	D-2	Ⓕ
Transistor & Resistor		
QR6001	D-1	Ⓕ
QR6002	B-1	Ⓕ
QR6003	B-1	Ⓕ
QR6004	C-1	Ⓕ
QR6005	D-19	Ⓒ
QR6006	D-1	Ⓕ
QR6007	B-2	Ⓕ
QR6008	C-9	Ⓕ
QR6009	D-9	Ⓕ
QR6010	C-2	Ⓕ
QR6011	E-21	Ⓒ
Integrated Circuit		
IC1501	E-12	Ⓕ
IC6001	C-2	Ⓕ
IC6002	B-21	Ⓒ
IC6003	E-19	Ⓒ
IC6005	C-13	Ⓒ
IC6006	G-22	Ⓒ
IC6007	F-1	Ⓕ
Test Point		
TP6001	D-20	Ⓒ
TP6002	E-20	Ⓒ
TP6003	D-21	Ⓒ
TP6004	D-14	Ⓒ
Adjustment		
VR6001	D-20	Ⓒ
VR6002	D-14	Ⓒ
Connector		
P1501	E-11	Ⓕ
P1502	E-11	Ⓕ
P1503	F-12	Ⓕ
P6001	C-22	Ⓒ
P6002	E-22	Ⓒ
P6003	C-22	Ⓒ
P6004	A-20	Ⓒ
P6005	A-20	Ⓒ
P6006	D-15	Ⓒ
P6007	H-13	Ⓒ
P6008	D-20	Ⓒ
P6009	A-19	Ⓒ
P6010	E-22	Ⓒ
P6011	A-19	Ⓒ
P6012	A-20	Ⓒ
P6013	C-15	Ⓒ
P6014	B-13	Ⓒ
Sub System Control (1) Section, Camera Stand by C.B.A.		
Transistor		
Q6601	G-7	Ⓕ
Q6602	G-17	Ⓒ
Q6603	G-15	Ⓒ
Q6604	G-15	Ⓒ
Q6605	G-8	Ⓕ
Q6606	G-8	Ⓕ
Q6607	F-8	Ⓕ
Q6610	E-8	Ⓕ
Q6612	F-8	Ⓕ
Transistor & Resistor		
QR6601	E-2	Ⓕ
QR6602	G-18	Ⓒ
QR6603	G-17	Ⓒ
QR6604	E-20	Ⓒ
QR6605	E-20	Ⓒ
QR6606	E-21	Ⓒ
QR6608	F-8	Ⓕ
QR6610	A-8	Ⓕ
QR6612	E-20	Ⓒ
QR6613	G-6	Ⓕ
QR6614	F-7	Ⓕ
QR6615	D-10	Ⓕ
Integrated Circuit		
IC6601	F-17	Ⓒ
IC6602	F-16	Ⓒ
IC6603	E-3	Ⓕ
IC6604	F-16	Ⓒ
IC6605	E-20	Ⓒ
IC6606	F-6	Ⓕ
Test Point		
TP6601	F-16	Ⓒ
Adjustment		
VR6601	E-13	Ⓒ
Connector		
P6602	A-20	Ⓒ
P6603	G-16	Ⓒ
P6604	G-17	Ⓒ
P6606	A-14	Ⓒ
P6607	E-15	Ⓒ
P6608	E-15	Ⓒ
P6609	G-14	Ⓒ
P6610	A-14	Ⓒ
Sub System Control (2) Section		
Transistor		
Q6701	E-14	Ⓒ
Q6702	F-14	Ⓒ
Q6703	F-14	Ⓒ
Q6704	F-9	Ⓕ
Q6705	F-9	Ⓕ
Q6706	F-14	Ⓒ
Q6707	G-14	Ⓒ
Q6708	G-9	Ⓕ
Q6709	E-14	Ⓒ
Q6710	E-14	Ⓒ
Q6711	E-8	Ⓕ
Q6712	E-8	Ⓕ
Q6713	E-8	Ⓕ
Q6714	E-9	Ⓕ
Q6715	D-15	Ⓕ
Q6716	D-9	Ⓕ
Transistor & Resistor		
QR6701	F-9	Ⓕ
QR6702	E-9	Ⓕ
QR6703	E-9	Ⓕ
QR6704	E-9	Ⓕ
QR6705	F-14	Ⓒ
Integrated Circuit		
IC6701	E-14	Ⓒ
IC6702	D-8	Ⓕ
IC6703	E-9	Ⓕ
IC6704	D-9	Ⓕ
IC6705	E-14	Ⓒ
IC6706	E-8	Ⓕ
IC6707	D-9	Ⓕ
IC6708	E-14	Ⓒ
IC6709	D-14	Ⓒ
Test Point		
TP6701	D-15	Ⓒ
TP6702	E-14	Ⓒ
TP6703	E-14	Ⓒ
Connector		
P6701	F-15	Ⓒ
Full Erase Head C.B.	—	
Transistor		
Q1503	D-12	Ⓕ
Connector		
P654	D-12	Ⓒ
P1503	E-12	Ⓕ

ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

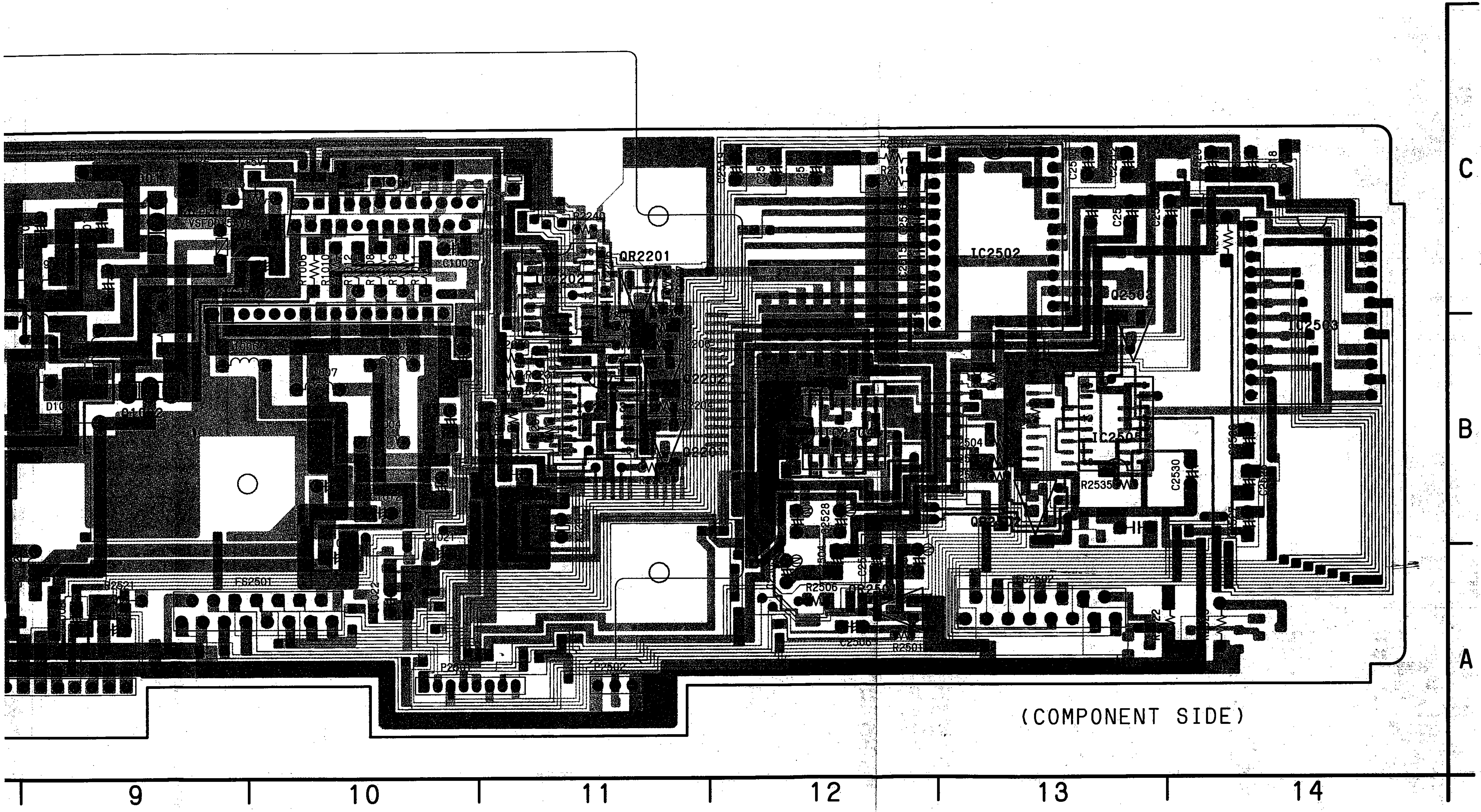
A.V.R. & REEL SERVO C.B.A. (VEP01290A)

TEN
C.B





TENSION SENSOR
C.B.
1
2
3
Q1504
QR2507
R1005
D2502
R2521
FS2501
D1003
Q1002
L1006
L1007
L1004
C1003
C1021
R1006
R1010
R1008
R1009
R1015
VSF0015AV8
P2501
R2240
QR220
5
6
7
8
9
10
11



(COMPONENT SIDE)

A.V.R. & Reel Servo C.B.A.	
Translator	
Q1001	C-9 ©
Q1002	B-9 ©
Q1504	C-8 Ⓕ
Q2201	B-11 ©
Q2202	B-11 ©
Q2502	A-1 Ⓕ
Q2503	C-13 ©
Translators & Resistors	
QR1001	C-5 Ⓕ
QR2201	C-11 ©
QR2501	A-12 ©
QR2502	B-13 ©
QR2503	C-2 Ⓕ
QR2504	B-3 Ⓕ
QR2505	B-3 Ⓕ
QR2506	A-3 Ⓕ
QR2507	A-4 Ⓕ
Integrated Circuit	
IC1001	C-10 ©
IC1002	B-9 ©
IC2201	B-4 Ⓕ
IC2202	R-11 ©
IC2202	C-11 ©
IC2203	B-11 ©
IC2501	B-2 Ⓕ
IC2502	C-13 ©
IC2503	B-14 ©
IC2504	B-12 ©
IC2505	B-13 ©
IC2506	B-2 Ⓕ
Test Point	
TP1001	C-9 ©
TP1002	C-9 ©
Adjustment	
VR1015	C-9 ©
Connector	
P1001	A-8 ©
P1002	A-9 ©
P2201	C-8 ©
P2501	A-10 ©
P2502	A-11 ©
FS2501	A-10 ©
FS2502	A-13 ©

ADDRESS INFORMATION
© ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

A.V.R. & REEL SERVO SCHEMATIC DIAGRAM

⬅ PLAY/SEARTH FORWARD/REC/SLOW

⬅ ■ ■ ■ SUPPLY REEL DRIVE

⬅ FF/REW

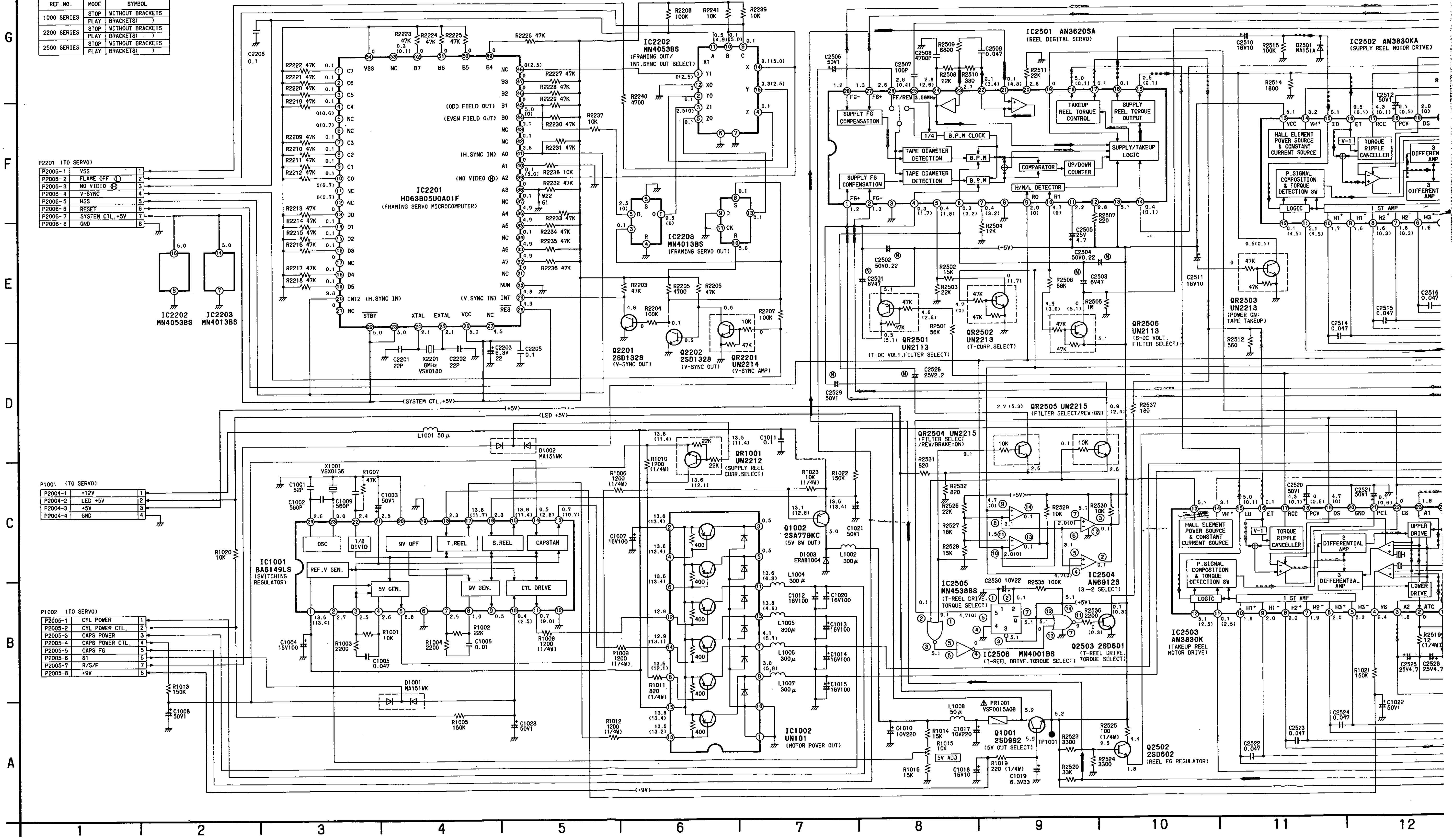
⬅ ■ ■ ■ TAKEUP REEL DRIVE

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK⚠HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS. USE ONLY THE SAME TYPE.

NOTE: DO NOT USE THE PART NUM
IN THE PARTS LIST. AND

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IS FOLLOWING CHART.
MEASUREMENT TAPE.....S-VHS CASSETTE TAPE

REF.NO.	MODE	SYMBOL
1000 SERIES	STOP	WITHOUT BRACKETS
	PLAY	BRACKETS( )
2200 SERIES	STOP	WITHOUT BRACKETS
	PLAY	BRACKETS( )
2500 SERIES	STOP	WITHOUT BRACKETS
	PLAY	BRACKETS( )


G
F
E
D
C
B
A
1
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3
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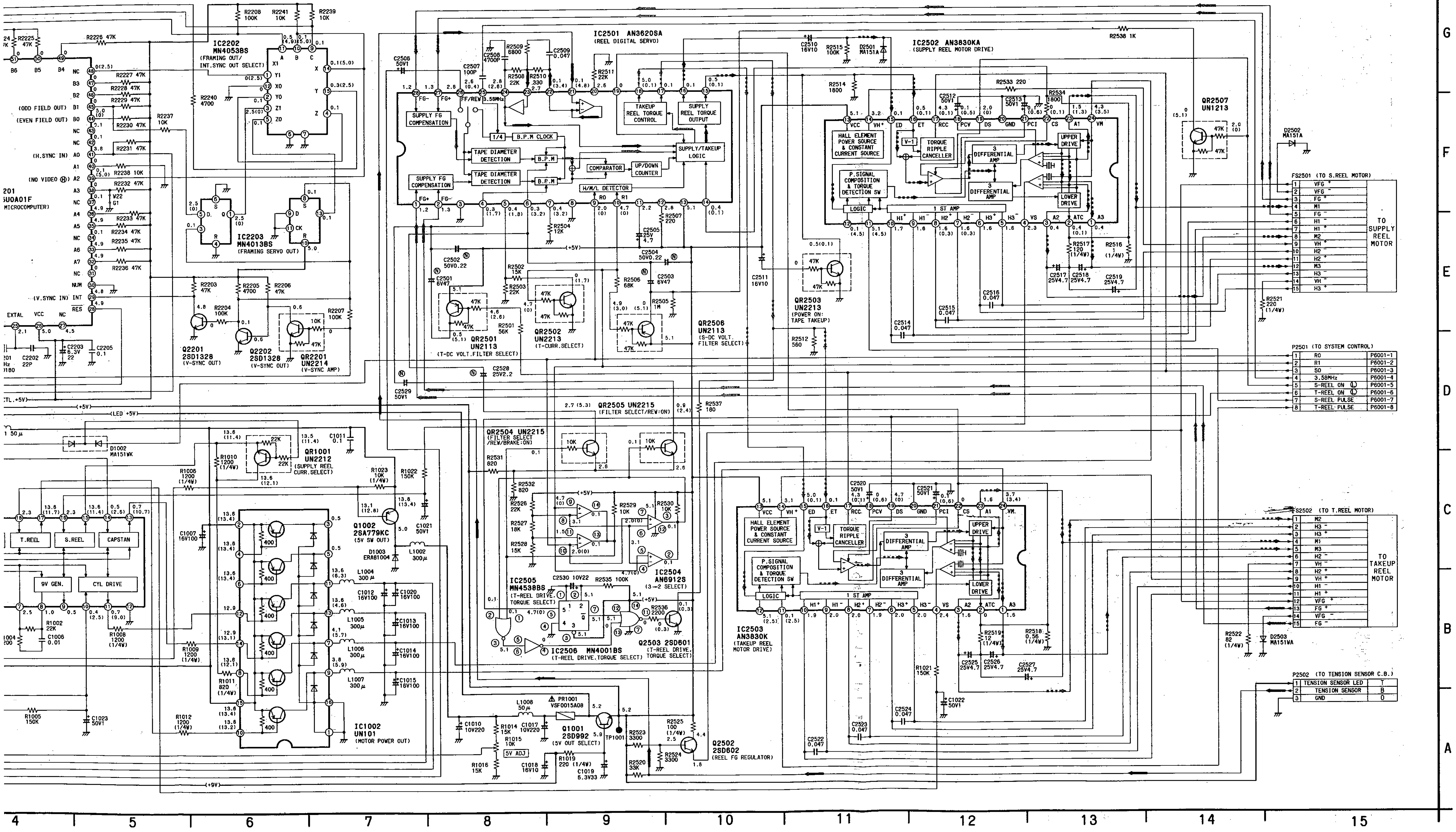
10
11
12
P2201 (TO SERVO)
P2006-1 VSS
P2006-2 FLAME OFF
P2006-3 NO VIDEO
P2006-4 V-SYNC
P2006-5 HSS
P2006-6 RESET
P2006-7 SYSTEM CTL.+5V
P2006-8 GND
IC2202 MN4053BS
IC2203 MN4013BS
IC2201 HD63B05U0A01F (FRAMING SERVO MICROCOMPUTER)
IC2202 MN4053BS (FRAMING OUT/ INT.SYNC OUT SELECT)
IC2203 MN4013BS (FRAMING SERVO OUT)
Q2201 2SD1328 (V-SYNC OUT)
Q2202 2SD1328 (V-SYNC OUT)
QR2201 UN2214 (V-SYNC AMP)
(SYSTEM CTL.+5V)
(+5V)
(LED +5V)
P1001 (TO SERVO)
P2004-1 +12V
P2004-2 LED +5V
P2004-3 +5V
P2004-4 GND
P1002 (TO SERVO)
P2005-1 CYL POWER
P2005-2 CYL POWER CTL.
P2005-3 CAPS POWER
P2005-4 CAPS POWER CTL.
P2005-5 CAPS FG
P2005-6 S1
P2005-7 R/S/F
P2005-8 +9V
IC1001 BA6149LS (SWITCHING REGULATOR)
OSC
1/8 DIVID
9V OFF
T.REEL
S.REEL
CAPSTAN
REF.V GEN.
5V GEN.
9V GEN.
CYL DRIVE
D1001 MA151WK
D1002 MA151WK
L1001 50μ
QR1001 UN2212 (SUPPLY REEL CURR.SELECT)
Q1002 2SA779KC (5V SW OUT)
D1003 ERA81004
IC1002 UN101 (MOTOR POWER OUT)
Q1001 2SD992 (5V OUT SELECT)
PR1001 VSF0015A08
5V ADJ
TP1001
(+9V)
IC2501 AN3620SA (REEL DIGITAL SERVO)
SUPPLY FG COMPENSATION
TAKEUP REEL TORQUE CONTROL
SUPPLY REEL TORQUE OUTPUT
1/4
B.P.M CLOCK
TAPE DIAMETER DETECTION
B.P.M
COMPARATOR
UP/DOWN COUNTER
SUPPLY/TAKEUP LOGIC
H/M/L DETECTOR
QR2501 UN2113 (T-DC VOLT.FILTER SELECT)
QR2502 UN2213 (T-CURR.SELECT)
QR2506 UN2113 (S-DC VOLT. FILTER SELECT)
QR2503 UN2213 (POWER ON: TAPE TAKEUP)
QR2504 UN2215 (FILTER SELECT /REW/BRAKE:ON)
QR2505 UN2215 (FILTER SELECT/REW:ON)
IC2505 MN4538BS (T-REEL DRIVE. TORQUE SELECT)
IC2506 MN4001BS (T-REEL DRIVE.TORQUE SELECT)
IC2504 AN6912S (3-2 SELECT)
Q2503 2SD601 (T-REEL DRIVE. TORQUE SELECT)
Q2502 2SD602 (REEL FG REGULATOR)
IC2502 AN3830KA (SUPPLY REEL MOTOR DRIVE)
IC2503 AN3830K (TAKEUP REEL MOTOR DRIVE)
HALL ELEMENT POWER SOURCE & CONSTANT CURRENT SOURCE
P.SIGNAL COMPOSITION & TORQUE DETECTION SW
LOGIC
TORQUE RIPPLE CANCELLER
DIFFERENTIAL AMP
1 ST AMP
UPPER DRIVE
LOWER DRIVE
D2501 MA151A

RAM

Y/SEARTH FORWARD/REC/SLOW ⬅ FF/REW
PLY REEL DRIVE ⬅ ■ ■ ■ TAKEUP REEL DRIVE

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST. AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.


IC2202 MN4053BS (FRAMING OUT/ INT.SYNC OUT SELECT)
IC2203 MN4013BS (FRAMING SERVO OUT)
201 UA01F MICROCOMPUTER)
(ODD FIELD OUT)
(EVEN FIELD OUT)
(H.SYNC IN)
(NO VIDEO)
(V.SYNC IN)
EXTAL
VCC
Q2201 2SD1328 (V-SYNC OUT)
Q2202 2SD1328 (V-SYNC OUT)
QR2201 UN2214 (V-SYNC AMP)
IC2501 AN3620SA (REEL DIGITAL SERVO)
SUPPLY FG COMPENSATION
TAPE DIAMETER DETECTION
B.P.M CLOCK
B.P.M
COMPARATOR
UP/DOWN COUNTER
H/M/L DETECTOR
TAKEUP REEL TORQUE CONTROL
SUPPLY REEL TORQUE OUTPUT
SUPPLY/TAKEUP LOGIC
QR2501 UN2113 (T-DC VOLT.FILTER SELECT)
QR2502 UN2213 (T-CURR.SELECT)
QR2506 UN2113 (S-DC VOLT. FILTER SELECT)
QR2503 UN2213 (POWER ON: TAPE TAKEUP)
IC2502 AN3830KA (SUPPLY REEL MOTOR DRIVE)
HALL ELEMENT POWER SOURCE & CONSTANT CURRENT SOURCE
TORQUE RIPPLE CANCELLER
DIFFERENTIAL AMP
P.SIGNAL COMPOSITION & TORQUE DETECTION SW
LOGIC
1 ST AMP
UPPER DRIVE
LOWER DRIVE
QR2507 UN1213
D2502 MA151A
FS2501 (TO S.REEL MOTOR)
TO SUPPLY REEL MOTOR
P2501 (TO SYSTEM CONTROL)
QR2505 UN2215 (FILTER SELECT/REW:ON)
QR2504 UN2215 (FILTER SELECT /REW/BRAKE:ON)
IC2505 MN4538BS (T-REEL DRIVE. TORQUE SELECT)
IC2504 AN6912S (3-2 SELECT)
IC2506 MN4001BS (T-REEL DRIVE.TORQUE SELECT)
Q2503 2SD601 (T-REEL DRIVE. TORQUE SELECT)
IC2503 AN3830K (TAKEUP REEL MOTOR DRIVE)
FS2502 (TO T.REEL MOTOR)
TO TAKEUP REEL MOTOR
P2502 (TO TENSION SENSOR C.B.)
TENSION SENSOR LED
TENSION SENSOR
GND
D2503 MA151WA
T.REEL
S.REEL
CAPSTAN
9V GEN.
CYL DRIVE
D1002 MA151WK
QR1001 UN2212 (SUPPLY REEL CURR.SELECT)
Q1002 2SA779KC (5V SW OUT)
D1003 ERA81004
IC1002 UN101 (MOTOR POWER OUT)
PR1001 VSF0015A08
Q1001 2SD992 (5V OUT SELECT)
5V ADJ
TP1001
Q2502 2SD602 (REEL FG REGULATOR)
G
F
E
D
C
B
A
4
5
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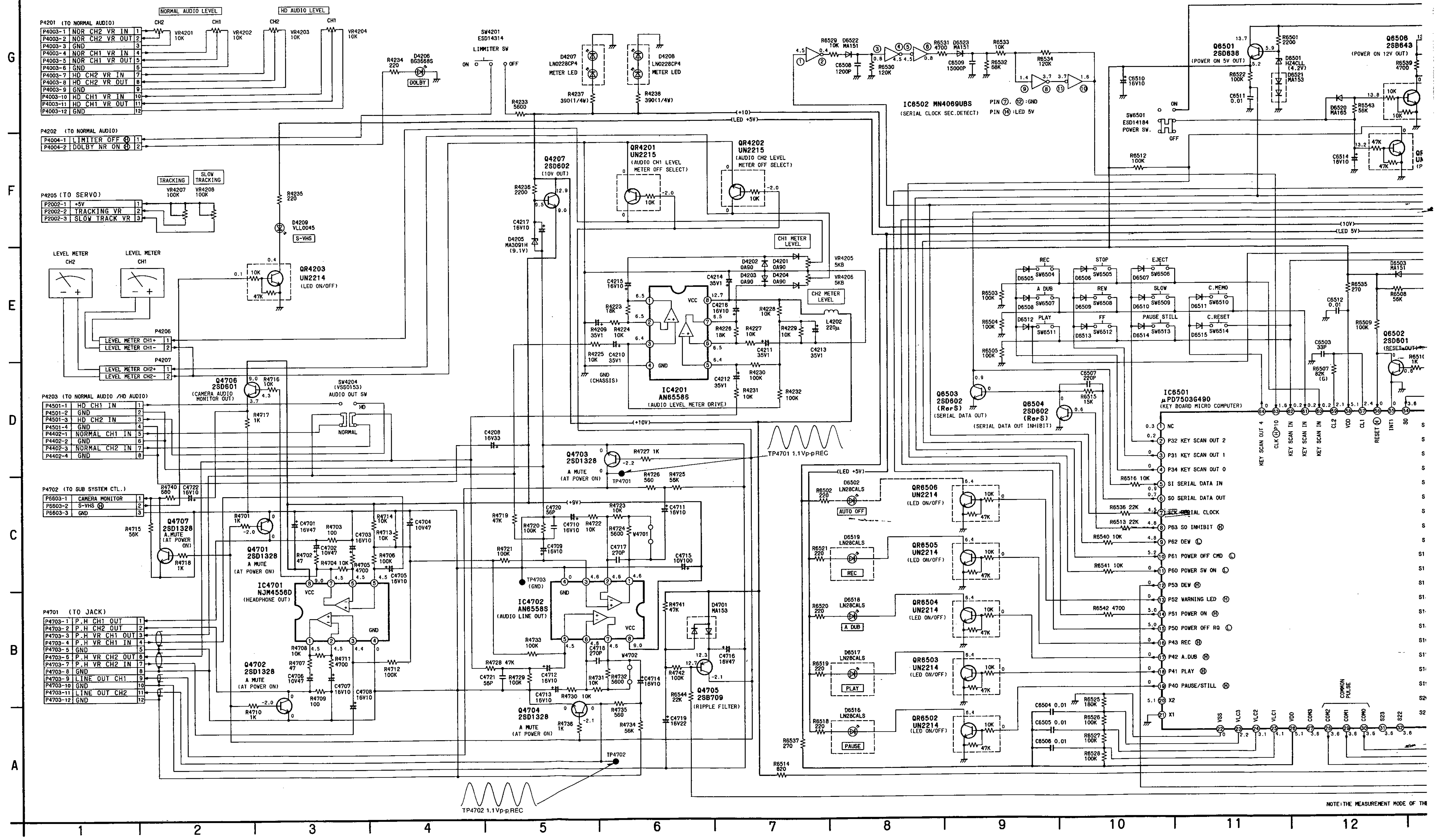
15

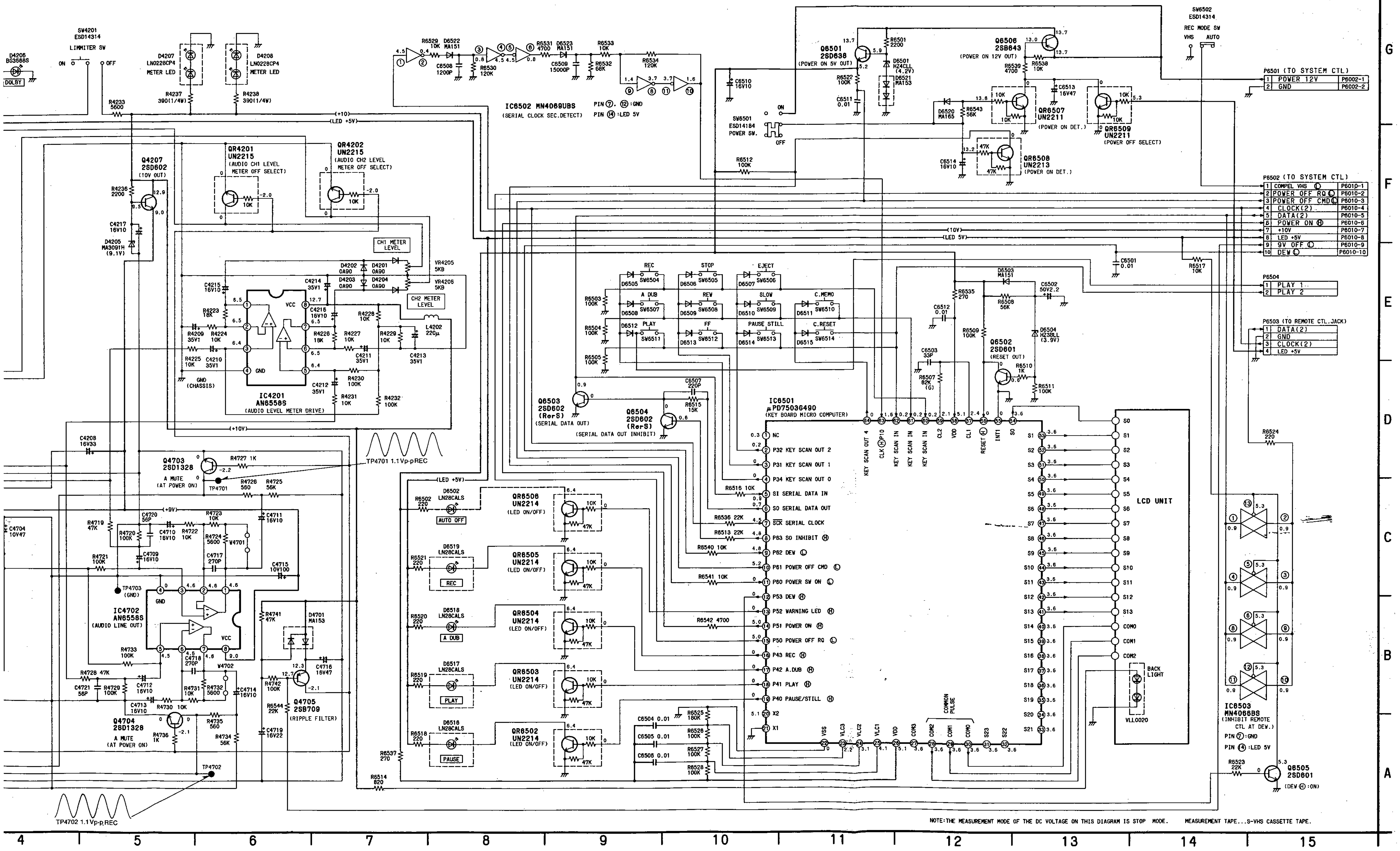
FRONT SCHEMATIC DIAGRAM

NOTE: DO NOT USE THE PART NUMI
IN THE PARTS LIST. AND



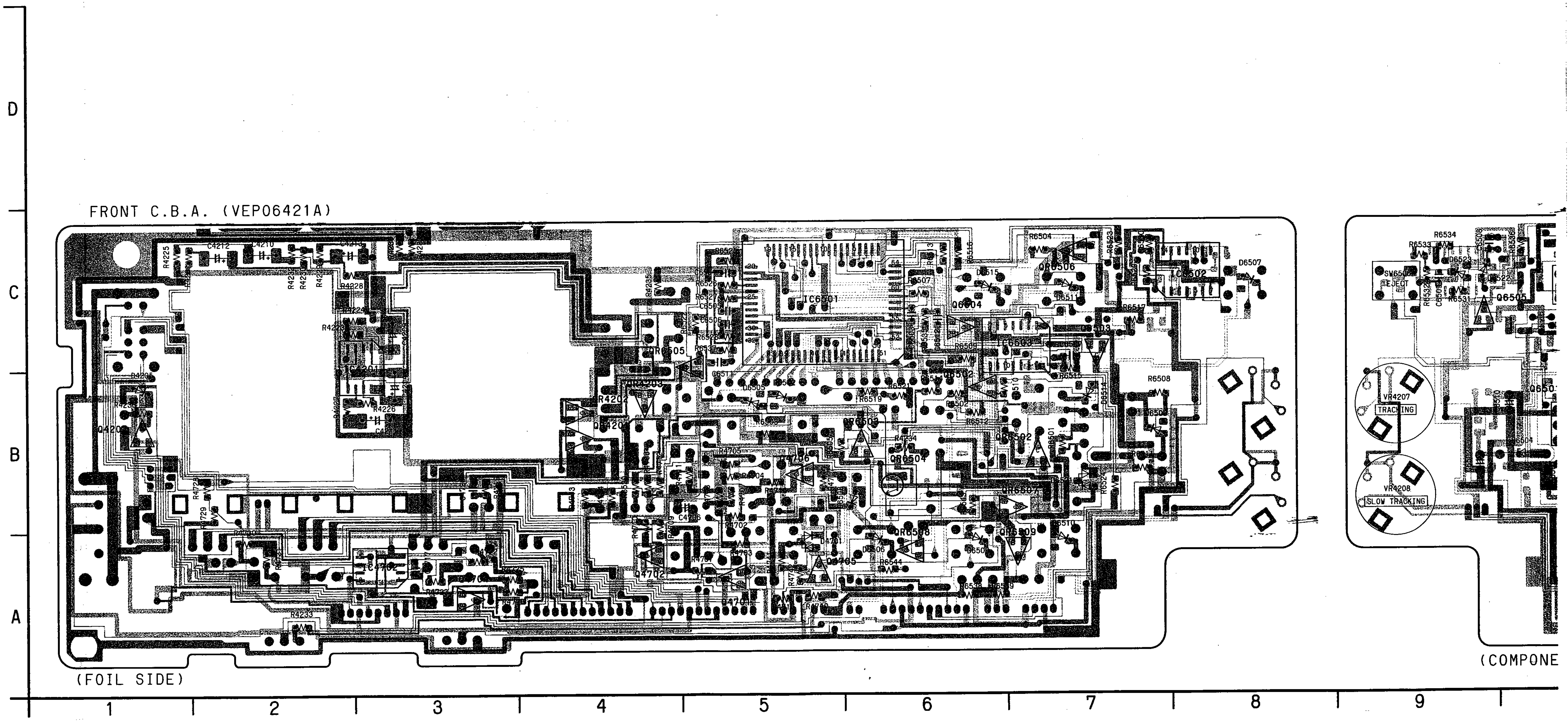
NOTE:THE MEASUREMENT MODE OF TH

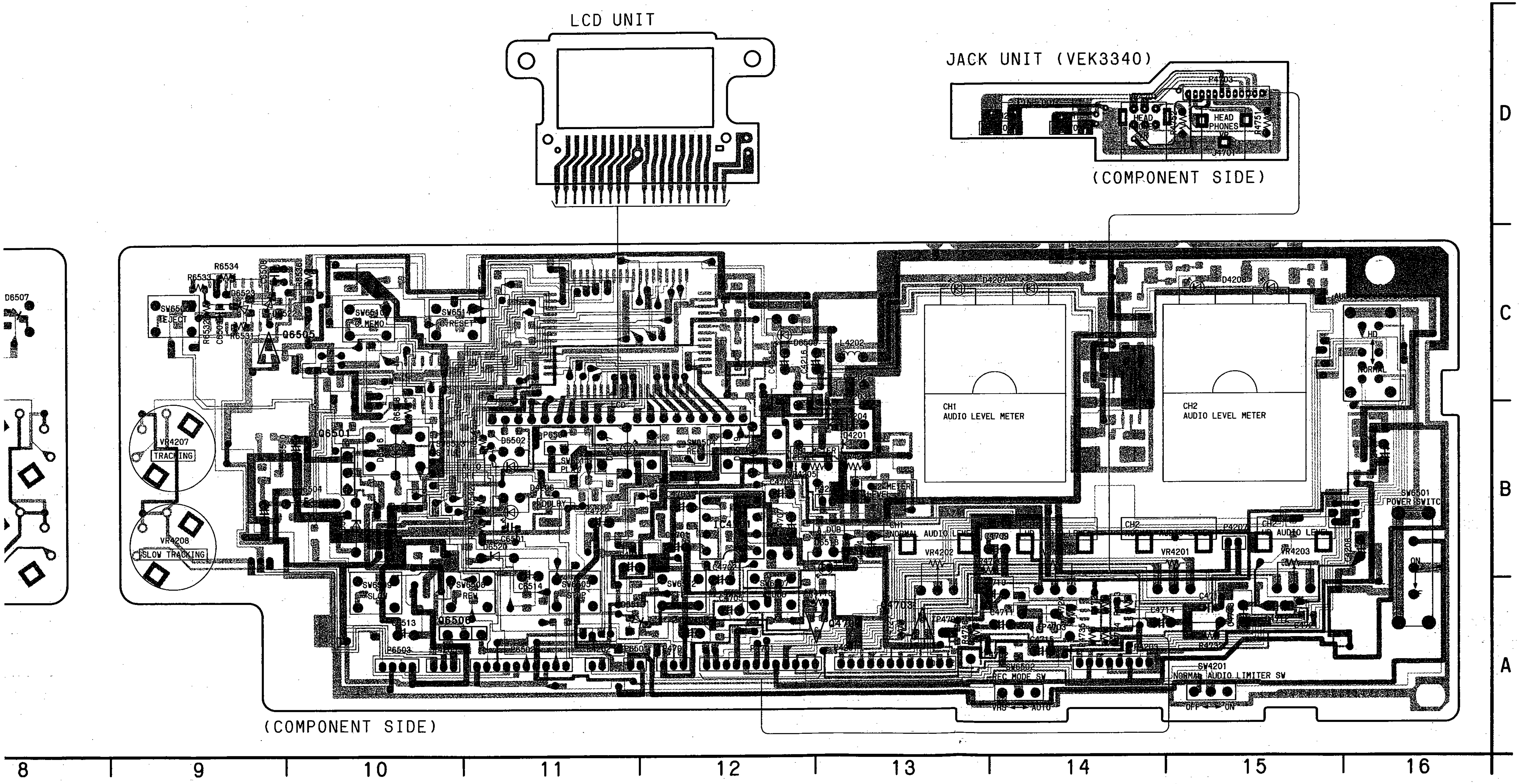
NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST. AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.



NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE. MEASUREMENT TAPE...S-VHS CASSETTE TAPE.

FRONT C.B.A. (VEP06421A)



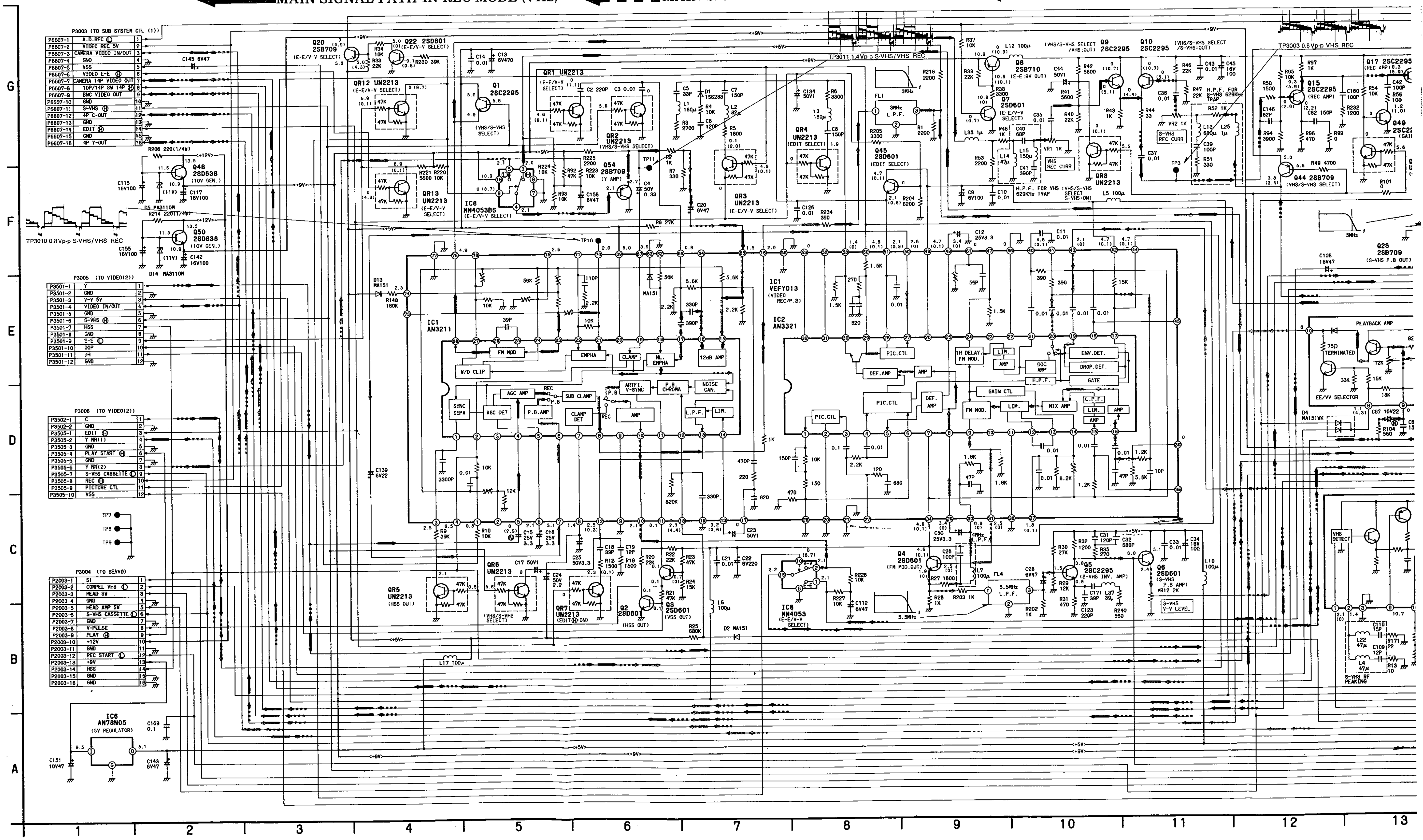


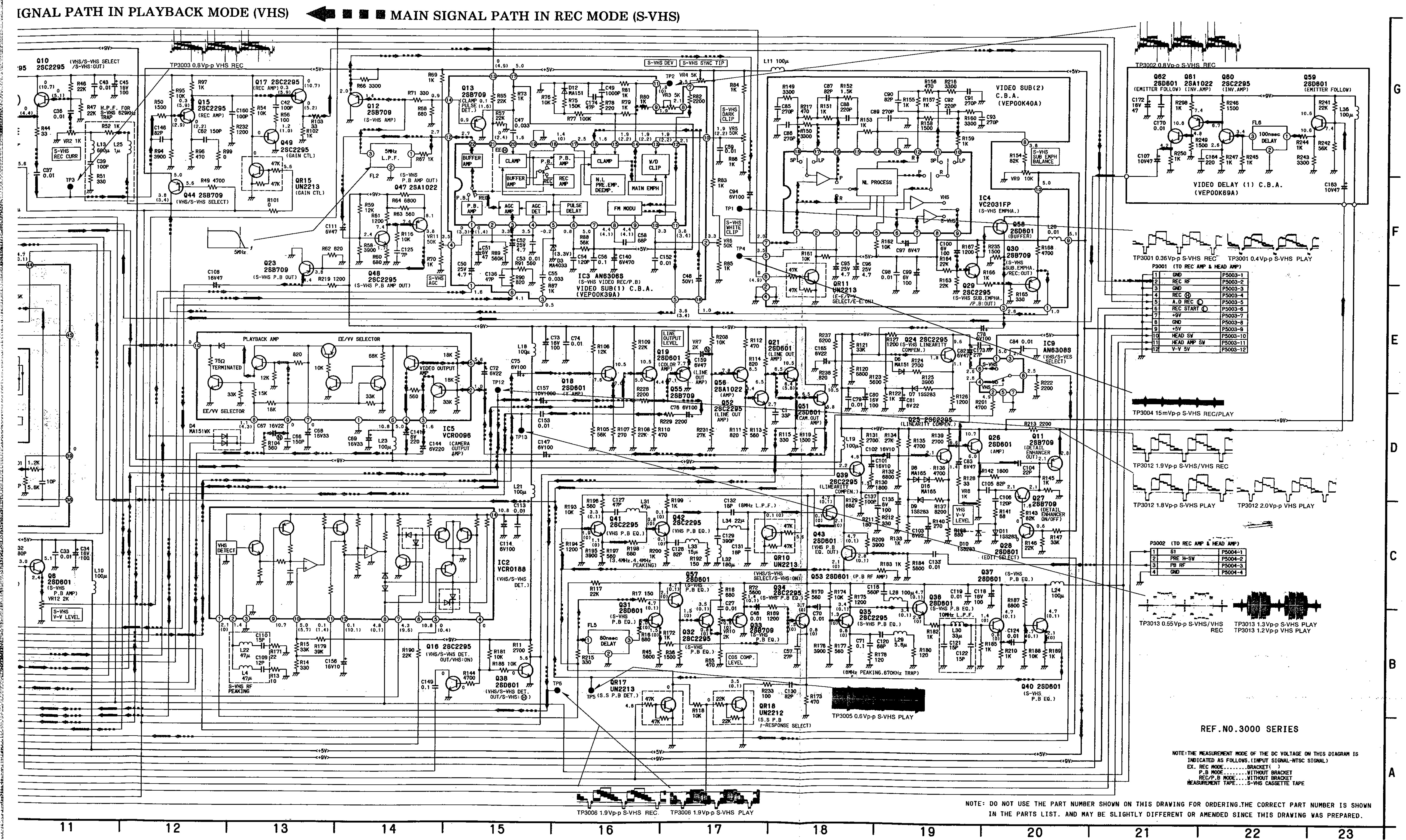
FRONT C.B.A. Jack Unit		
Transistor		
Q4207	B-1	Ⓕ
Q4701	A-5	Ⓕ
Q4702	A-4	Ⓕ
Q4703	A-13	©
Q4704	A-3	Ⓕ
Q4705	A-5	Ⓕ
Q4706	B-5	Ⓕ
Q4707	A-13	©
Q5606	A-10	©
Q6501	B-10	©
Q6502	B-6	Ⓕ
Q6503	C-7	Ⓕ
Q6504	C-6	Ⓕ
Q6505	C-10	©
Transistor & Resistor		
QR4201	B-4	Ⓕ
QR4202	B-4	Ⓕ
QR4203	B-4	Ⓕ
QR5609	A-7	Ⓕ
QR6502	B-7	Ⓕ
QR6503	B-6	Ⓕ
QR6504	B-6	Ⓕ
QR6505	C-4	Ⓕ
QR6506	C-7	Ⓕ
QR6507	B-7	Ⓕ
QR6508	A-6	Ⓕ
Integrated Circuit		
IC4201	C-3	Ⓕ
IC4701	B-12	©
IC4702	A-3	Ⓕ
IC6501	C-5	Ⓕ
IC6502	C-8	Ⓕ
IC6503	C-7	Ⓕ
Test Point		
TP4701	A-13	©
TP4702	A-13	©
TP4703	B-14	©
Adjustment		
VR4201	B-15	©
VR4202	B-13	©
VR4203	B-15	©
VR4204	B-14	©
VR4205	B-12	©
VR4206	B-13	©
VR4207	B-9	©
VR4208	B-9	©
VR4701	D-14	©
Connector		
P4201	A-13	©
P4202	A-11	©
P4203	A-14	©
P4205	A-10	©
P4206	B-13	©
P4207	B-15	©
P4701	A-12	©
P4702	A-12	©
P4703	D-15	©
P6501	A-11	©
P6502	A-11	©
P6503	A-10	©
P6504	B-11	©

ADDRESS INFORMATION
© ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

VIDEO (1) SCHEMATIC DIAGRAM

MAIN SIGNAL PATH IN REC MODE (VHS) ■ ■ ■ MAIN SIGNAL PATH IN REC MODE (S-VHS) MAIN SIGNAL PATH IN PLAYBACK MODE (VHS)



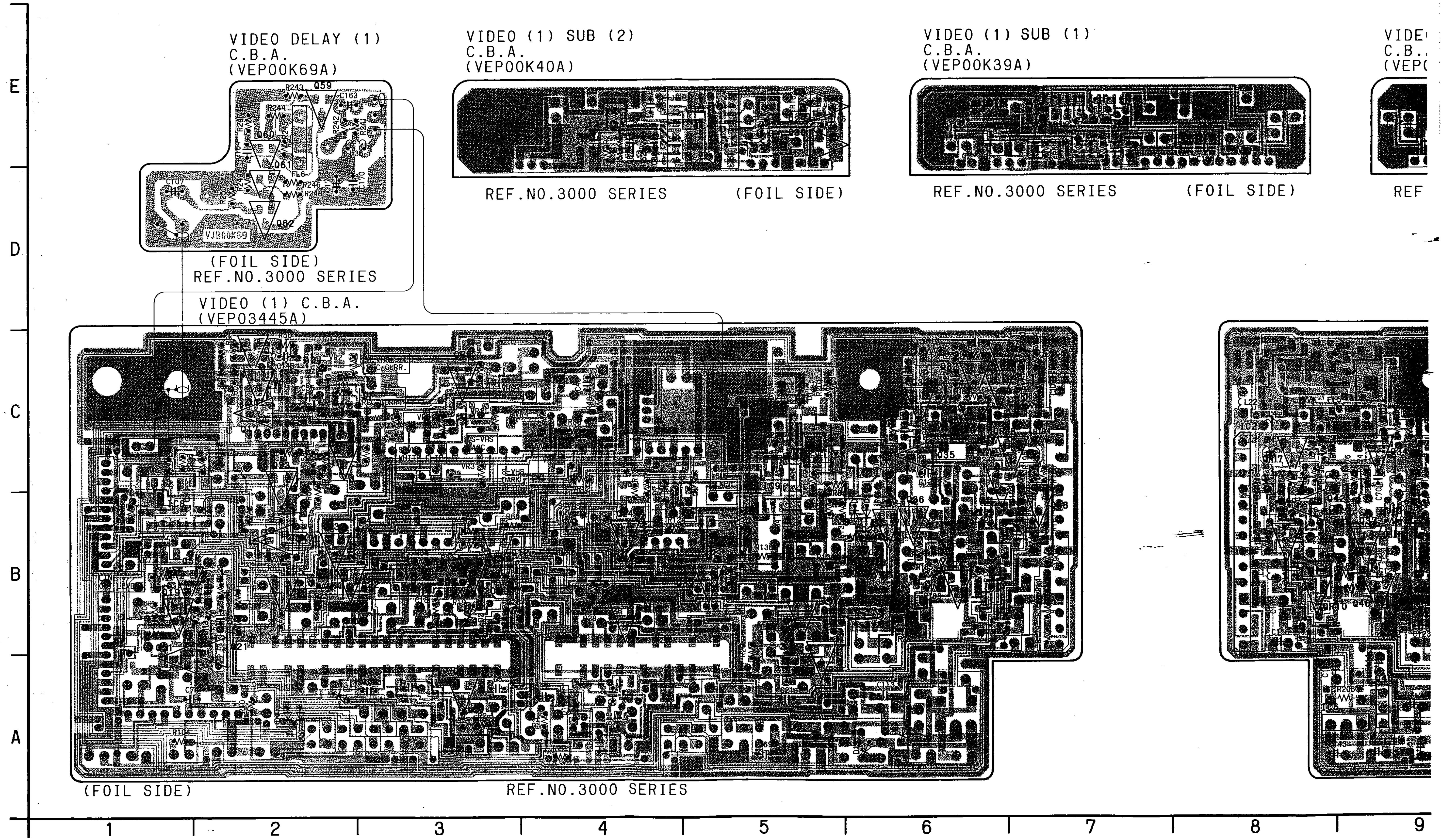


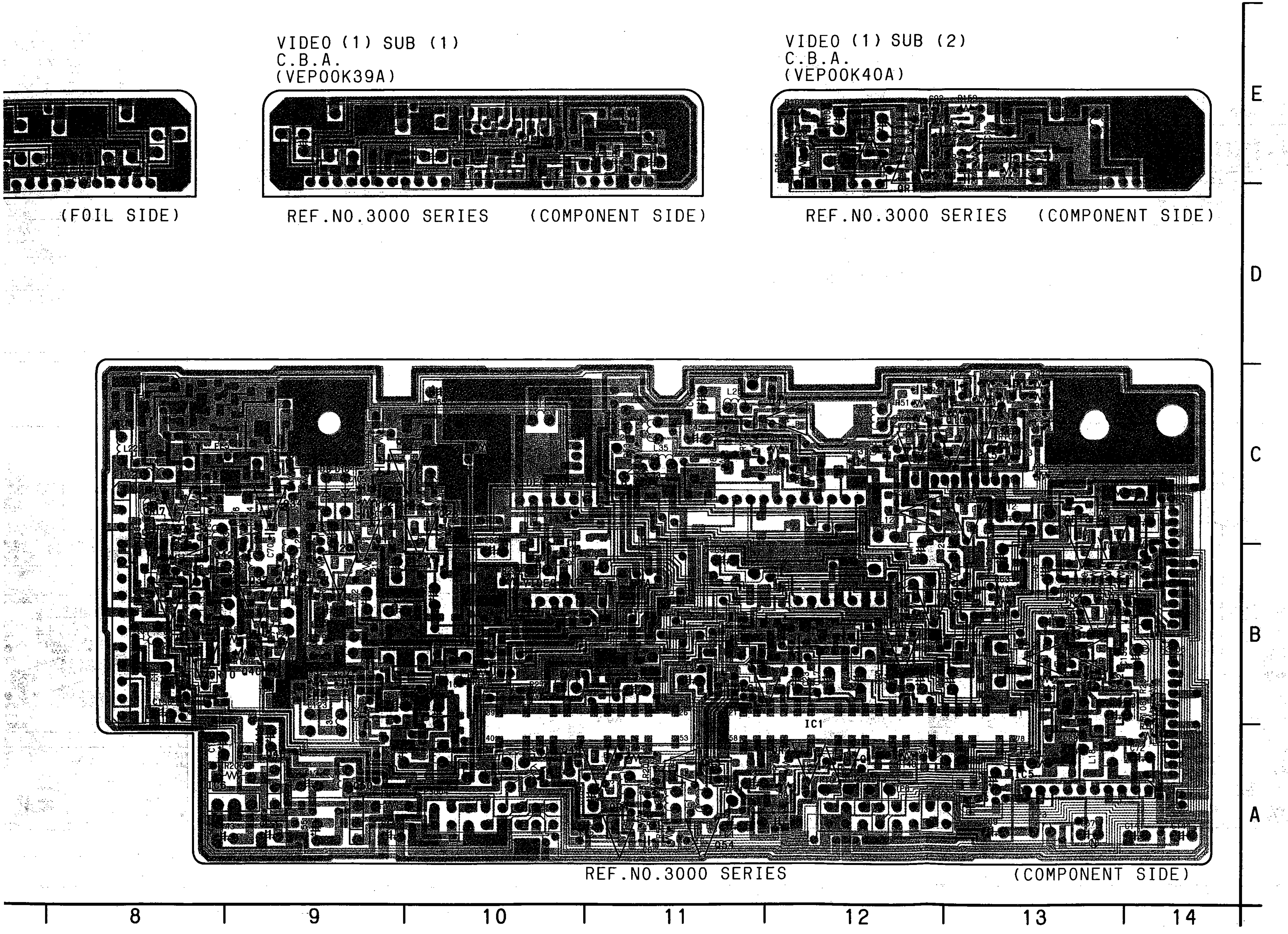
REF.NO.3000 SERIES

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS INDICATED AS FOLLOWS.(INPUT SIGNAL-NTSC SIGNAL)
EX. REC MODE........BRACKET( )
P.B MODE........WITHOUT BRACKET
REC/P.B MODE....WITHOUT BRACKET
MEASUREMENT TAPE....S-VHS CASSETTE TAPE

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST. AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

VIDEO (1) C.B.A. (VEP03455A)



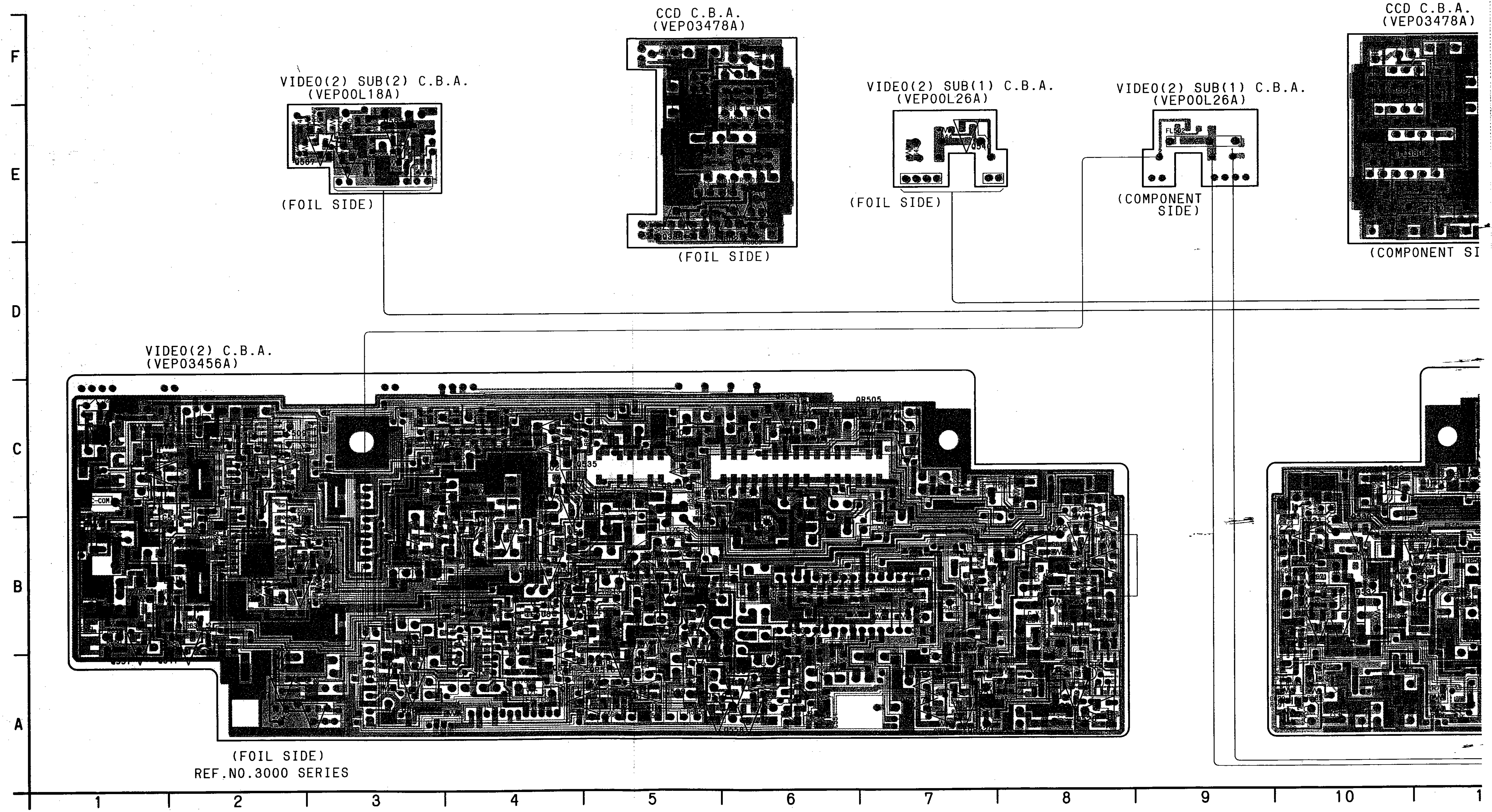


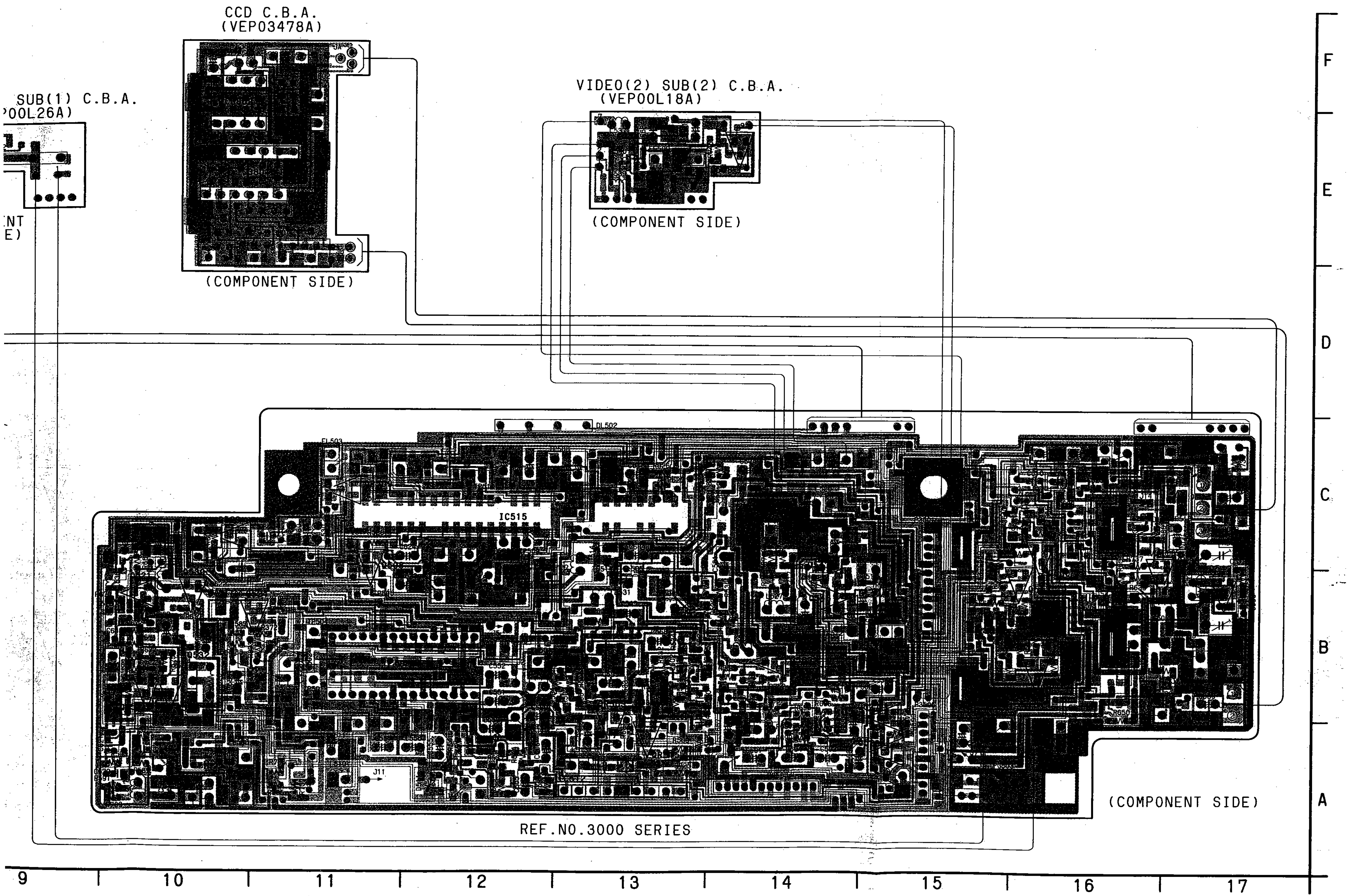
Video (1), Video Delay (1), Video Sub (1)/(2) C.B.A.

Ref. No.	Address	Side
Transistor		
Q3001	A-12	©
Q3002	B-13	©
Q3003	B-2	Ⓕ
Q3004	B-4	Ⓕ
Q3005	B-5	Ⓕ
Q3006	B-5	Ⓕ
Q3007	C-2	Ⓕ
Q3008	C-12	©
Q3009	C-12	©
Q3010	C-13	©
Q3011	C-9	©
Q3012	B-4	Ⓕ
Q3013	E-6	©
Q3015	C-2	Ⓕ
Q3016	B-8	©
Q3017	C-2	Ⓕ
Q3018	B-13	©
Q3019	B-1	Ⓕ
Q3020	B-3	Ⓕ
Q3021	B-2	Ⓕ
Q3022	B-3	Ⓕ
Q3023	C-2	Ⓕ
Q3024	B-4	Ⓕ
Q3025	B-6	Ⓕ
Q3026	B-9	©
Q3027	C-10	©
Q3028	C-10	©
Q3029	E-5	Ⓕ
Q3030	E-5	Ⓕ
Q3031	C-6	Ⓕ
Q3032	C-6	Ⓕ
Q3033	C-6	Ⓕ
Q3034	C-9	©
Q3035	C-6	Ⓕ
Q3036	B-6	Ⓕ
Q3037	B-9	©
Q3038	B-7	Ⓕ
Q3039	B-5	Ⓕ
Q3040	B-9	©
Q3041	C-6	Ⓕ
Q3042	B-8	©
Q3043	B-6	Ⓕ
Q3044	C-12	©
Q3045	A-10	©
Q3046	A-9	©
Q3047	B-2	Ⓕ
Q3048	C-13	©
Q3049	C-2	Ⓕ
Q3050	A-9	©
Q3051	A-1	Ⓕ
Q3052	B-13	©
Q3053	C-6	Ⓕ
Q3054	A-11	©
Q3055	B-1	Ⓕ
Q3056	B-13	©
Q3057	C-7	Ⓕ
Q3058	E-12	Ⓕ
Q3059	E-2	Ⓕ
Q3060	E-2	Ⓕ
Q3061	D-2	Ⓕ
Q3062	D-2	Ⓕ
Transistor & Resistor		
QR3001	A-3	Ⓕ
QR3002	A-12	©
QR3003	A-11	©
QR3004	A-11	©
QR3005	B-2	Ⓕ
QR3006	B-11	©
QR3007	B-12	©
QR3008	C-3	Ⓕ
QR3010	B-8	©
QR3011	D-12	©
QR3012	C-13	©
QR3013	C-13	©
QR3015	C-13	©
QR3017	C-8	©
QR3018	C-7	Ⓕ
Integrated Circuit		
IC3001	A-12	©
IC3002	C-8	©
IC3003	E-10	©
IC3004	E-5	Ⓕ
IC3005	A-13	©
IC3006	A-9	©
IC3008	B-1	Ⓕ
IC3009	C-5	Ⓕ
Test Point		
TP3001	B-11	©
TP3002	C-11	©
TP3003	C-11	©
TP3004	B-12	©
TP3005	B-9	©
TP3006	A-12	©
TP3007	B-9	©
TP3008	B-12	©
TP3009	C-10	©
TP3010	A-12	©
TP3011	A-11	©
TP3012	A-12	©
TP3013	A-12	©
Adjustment		
VR3001	C-3	Ⓕ
VR3002	C-2	Ⓕ
VR3003	C-3	Ⓕ
VR3004	C-4	Ⓕ
VR3005	C-4	Ⓕ
VR3006	C-3	Ⓕ
VR3007	B-1	Ⓕ
VR3008	C-5	Ⓕ
VR3009	B-5	Ⓕ
VR3010	C-6	Ⓕ
VR3011	C-3	Ⓕ
VR3012	C-4	Ⓕ
Connector		
P3001	C-12	©
P3002	C-10	©
P3003	A-12	©
P3004	A-10	©
P3005	C-14	©
P3006	B-14	©

ADDRESS INFORMATION
© ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

VIDEO (2) C.B.A. (VEP03456A)





VIDEO (2), CCD, VIDEO (2) SUB (1)/(2) C.B.A.

Transistor		
Q3501	B-4	Ⓕ
Q3502	B-4	Ⓕ
Q3503	B-4	Ⓕ
Q3504	B-5	Ⓕ
Q3505	B-5	Ⓕ
Q3506	B-5	Ⓕ
Q3507	B-4	Ⓕ
Q3508	C-11	Ⓒ
Q3509	A-5	Ⓕ
Q3510	B-4	Ⓕ
Q3511	A-4	Ⓕ
Q3512	C-3	Ⓕ
Q3513	B-16	Ⓒ
Q3514	B-3	Ⓕ
Q3515	B-3	Ⓕ
Q3516	B-3	Ⓕ
Q3517	B-2	Ⓕ
Q3518	B-16	Ⓒ
Q3519	A-5	Ⓕ
Q3520	C-1	Ⓕ
Q3521	B-10	Ⓒ
Q3522	B-8	Ⓕ
Q3524	B-11	Ⓒ
Q3525	A-8	Ⓕ
Q3526	A-8	Ⓕ
Q3527	B-15	Ⓒ
Q3528	A-15	Ⓒ
Q3530	B-10	Ⓒ
Q3531	C-4	Ⓕ
Q3532	B-10	Ⓒ
Q3534	C-4	Ⓕ
Q3535	C-4	Ⓕ
Q3536	C-6	Ⓕ
Q3537	A-2	Ⓕ
Q3538	B-17	Ⓒ
Q3539	C-1	Ⓕ
Q3540	E-7	Ⓕ
Q3541	A-2	Ⓕ
Q3542	B-17	Ⓒ
Q3543	B-5	Ⓕ
Q3544	B-5	Ⓕ
Q3545	A-4	Ⓕ
Q3546	B-14	Ⓒ
Q3547	B-14	Ⓒ
Q3548	B-4	Ⓕ
Q3549	C-3	Ⓕ
Q3550	B-16	Ⓒ
Q3551	A-1	Ⓕ
Q3552	B-10	Ⓒ
Q3553	B-10	Ⓒ
Q3554	B-8	Ⓕ
Q3555	C-8	Ⓕ
Q3556	A-6	Ⓕ
Q3557	A-6	Ⓕ
Q3558	A-6	Ⓕ
Q3559	B-5	Ⓕ
Q3560	B-3	Ⓕ
Q3561	B-4	Ⓕ
Q3562	B-3	Ⓕ
Q3563	E-4	Ⓕ
Q3564	A-3	Ⓕ
Q3565	E-3	Ⓕ
Q3566	E-3	Ⓕ
Q3567	E-2	Ⓕ
Q3568	E-13	Ⓒ
Q3569	B-14	Ⓒ
Q3801	D-5	Ⓕ
Q3802	D-5	Ⓕ
Q3803	E-5	Ⓕ
Transistor & Resistor		
QR3502	C-4	Ⓕ
QR3503	B-13	Ⓒ
QR3504	B-5	Ⓕ
QR3505	C-7	Ⓕ
QR3506	C-5	Ⓕ
QR3507	C-5	Ⓕ
QR3508	C-7	Ⓕ
QR3509	C-11	Ⓒ
QR3510	C-6	Ⓕ
QR3515	A-13	Ⓒ
QR3516	A-5	Ⓕ
QR3517	A-7	Ⓕ
QR3518	A-7	Ⓕ
QR3519	A-7	Ⓕ
QR3520	A-7	Ⓕ
QR3523	B-7	Ⓕ
QR3529	C-10	Ⓒ
Integrated Circuit		
IC3501	A-4	Ⓕ
IC3503	A-8	Ⓕ
IC3504	C-2	Ⓕ
IC3505	C-2	Ⓕ
IC3506	B-2	Ⓕ
IC3508	B-4	Ⓕ
IC3509	C-3	Ⓕ
IC3510	B-12	Ⓒ
IC3511	A-8	Ⓕ
IC3512	A-13	Ⓒ
IC3515	C-12	Ⓒ
IC3516	B-2	Ⓕ
IC3801	E-10	Ⓒ
IC3802	E-10	Ⓒ
Test Point		
TP3501	B-11	Ⓒ
TP3502	B-15	Ⓒ
TP3503	B-12	Ⓒ
TP3504	B-11	Ⓒ
TP3505	B-11	Ⓒ
TP3506	C-12	Ⓒ
TP3507	B-10	Ⓒ
TP3508	C-12	Ⓒ
TP3509	C-12	Ⓒ
TP3510	C-12	Ⓒ
TP3511	C-16	Ⓒ
TP3512	B-14	Ⓒ
TP3513	C-17	Ⓒ
TP3514	B-13	Ⓒ
TPG3001	C-13	Ⓒ
TPG3502	B-14	Ⓒ
TPG3503	A-15	Ⓒ
Adjustment		
VR3501	C-1	Ⓕ
VR3502	B-2	Ⓕ
VR3503	B-1	Ⓕ
VR3505	B-1	Ⓕ
VR3506	B-7	Ⓕ
VR3507	B-7	Ⓕ
VR3508	B-8	Ⓕ
VR3509	C-8	Ⓕ
VR3510	B-7	Ⓕ
VR3511	B-8	Ⓕ
VR3512	B-5	Ⓕ
VR3513	B-5	Ⓕ
C3578	C-17	Ⓒ
C3633	B-17	Ⓒ
Connector		
P3501	C-15	Ⓒ
P3502	B-10	Ⓒ
P3503	A-14	Ⓒ
P3504	C-10	Ⓒ
P3505	B-15	Ⓒ
P3506	A-13	Ⓒ

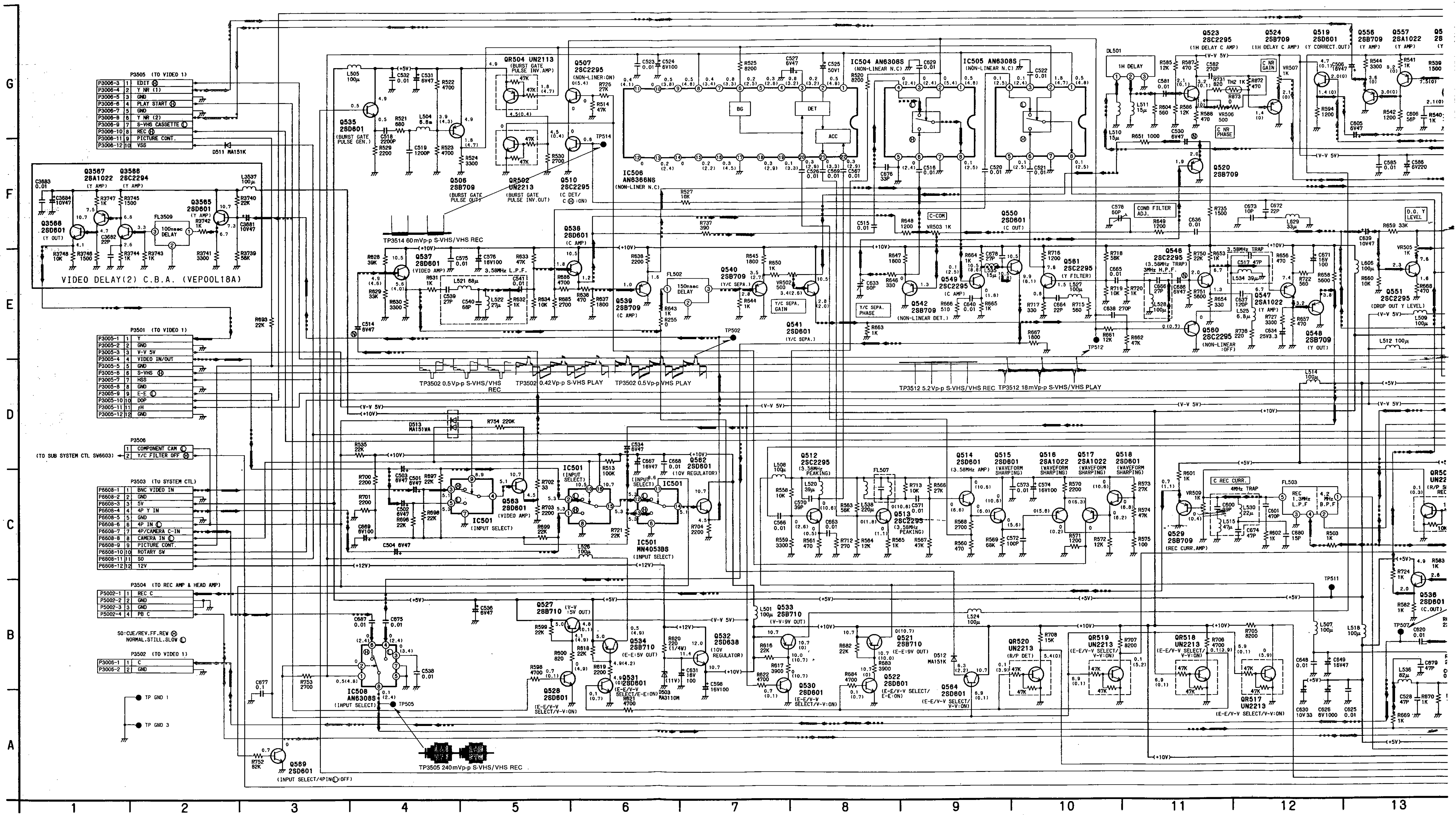
ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

VIDEO (2) SCHEMATIC DIAGRAM

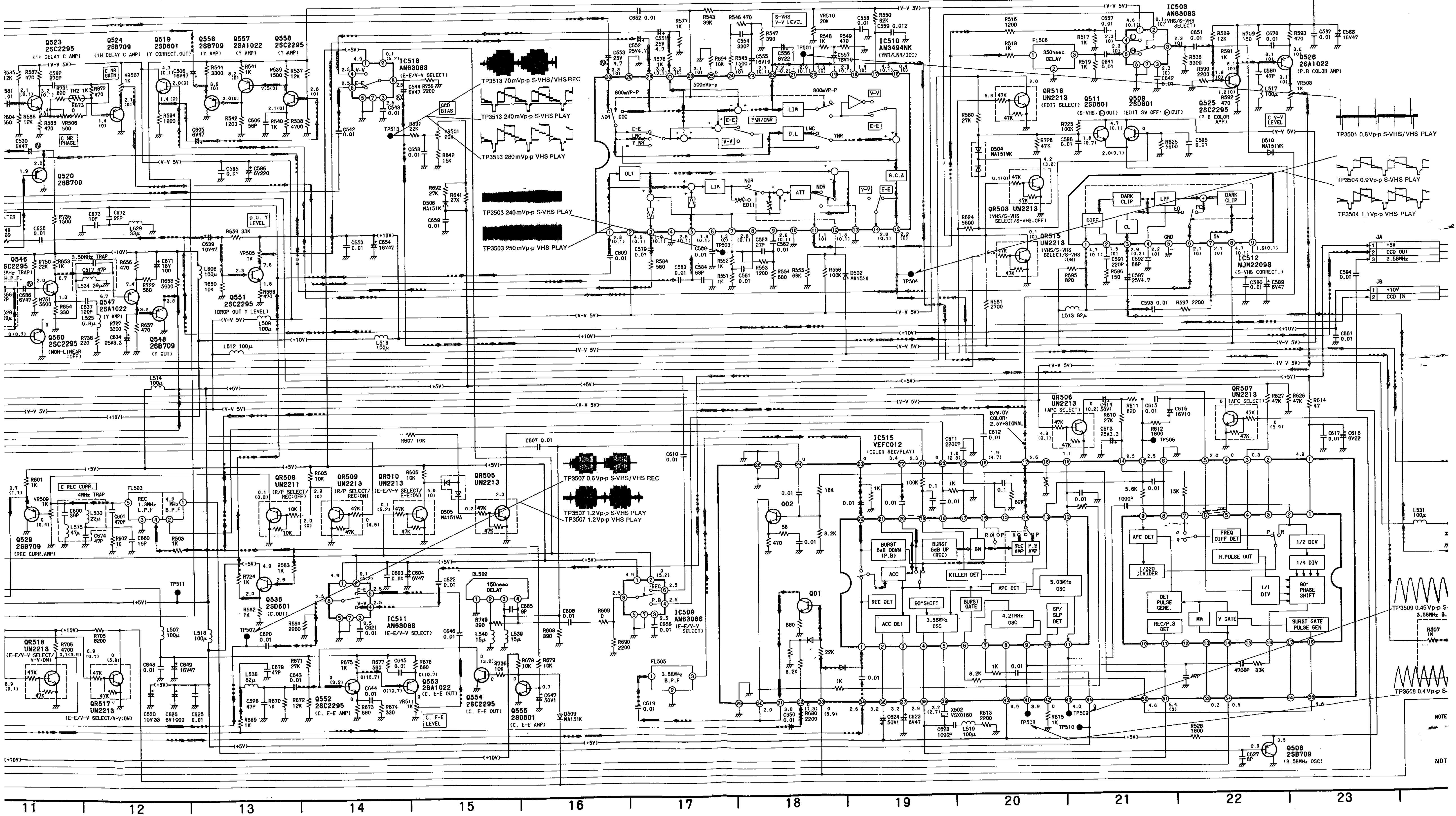
MAIN SIGNAL PATH IN REC MODE (VHS)

MAIN SIGNAL PATH IN REC MODE (S-VHS)

MAIN SIGNAL PATH IN PLAYBACK


VIDEO DELAY(2) C.B.A. (VEPOOL18A)
P3505 (TO VIDEO 1)
P3501 (TO VIDEO 1)
P3506
P3503 (TO SYSTEM CTL)
P3504 (TO REC AMP & HEAD AMP)
P3502 (TO VIDEO 1)
(TO SUB SYSTEM CTL SW6603)
TP3514 60mVp-p S-VHS/VHS REC
TP3502 0.5Vp-p S-VHS/VHS REC
TP3502 0.42Vp-p S-VHS PLAY
TP3502 0.5Vp-p VHS PLAY
TP3512 5.2Vp-p S-VHS/VHS REC
TP3512 18mVp-p S-VHS/VHS PLAY
TP3505 240mVp-p S-VHS/VHS REC
IC506 AN6366NS (NON-LINER N.C)
IC504 AN6308S (NON-LINEAR N.C)
IC505 AN6308S (NON-LINEAR N.C)
IC501 (INPUT SELECT)
IC501 MN4053BS (INPUT SELECT)
IC508 AN6308S (INPUT SELECT)
DL501 1H DELAY
FL502 150nsec DELAY
FL3509 100nsec DELAY
FL507
FL503 REC 1.3MHz L.P.F 4.2MHz B.P.F
C REC CURR. 4MHz TRAP
COMB FILTER ADJ.
D.O. Y LEVEL
Y/C SEPA. GAIN
Y/C SEPA. PHASE
C NR GAIN
C NR PHASE
C-COM
TP GND 1
TP GND 3
A
B
C
D
E
F
G
1
2
3
4
5
6
7
8
9
10
11
12
13

MAIN SIGNAL PATH IN PLAYBACK MODE (VHS) ◀■■■ MAIN SIGNAL PATH IN REC MODE (S-VHS)


Q523 2SC2295 (1H DELAY C AMP)
Q524 2SB709 (1H DELAY C AMP)
Q519 2SD601 (Y CORRECT.OUT)
Q556 2SB709 (Y AMP)
Q557 2SA1022 (Y AMP)
Q558 2SC2295 (Y AMP)
Q520 2SB709
Q546 2SC2295 3.58MHz TRAP
Q547 2SA1022 (Y AMP)
Q548 2SB709 (Y OUT)
Q560 2SC2295 (NON-LINEAR :OFF)
Q551 2SC2295 (DROP OUT Y LEVEL)
IC516 AN6308S (E-E/V-V SELECT)
TP3513 70mVp-p S-VHS/VHS REC
TP3513 240mVp-p S-VHS PLAY
TP3513 280mVp-p VHS PLAY
TP3503 240mVp-p S-VHS PLAY
TP3503 250mVp-p VHS PLAY
IC510 AN3494NK (YNR/LNR/DOC)
S-VHS V-V LEVEL
QR516 UN2213 (EDIT SELECT)
Q511 2SD601 (S-VHS: ⊕OUT)
Q509 2SD601 (EDIT SW OFF: ⊕OUT)
IC503 AN6308S (VHS/S-VHS SELECT)
Q526 2SA1022 (P.B COLOR AMP)
Q525 2SC2295 (P.B COLOR AMP)
TP3501 0.8Vp-p S-VHS/VHS PLAY
TP3504 0.9Vp-p S-VHS PLAY
TP3504 1.1Vp-p VHS PLAY
QR503 UN2213 (VHS/S-VHS SELECT/S-VHS:OFF)
QR515 UN2213 (VHS/S-VHS SELECT/S-VHS:ON)
IC512 NJM2209S (S-VHS CORRECT.)
JA +5V CCD OUT 3.58MHz
JB +10V CCD IN
Q529 2SB709 (REC CURR.AMP)
C REC CURR.
FL503 REC 1.3MHz L.P.F 4.2MHz B.P.F
QR508 UN2211 (R/P SELECT/REC:OFF)
QR509 UN2213 (R/P SELECT/REC:ON)
QR510 UN2213 (E-E/V-V SELECT/E-E:ON)
QR505 UN2213
TP3507 0.6Vp-p S-VHS/VHS REC
TP3507 1.2Vp-p S-VHS PLAY
TP3507 1.2Vp-p VHS PLAY
IC515 VEFC012 (COLOR REC/PLAY)
QR506 UN2213 (APC SELECT)
QR507 UN2213 (AFC SELECT)
Q538 2SD601 (C.OUT)
IC511 AN6308S (E-E/V-V SELECT)
DL502 150nsec DELAY
IC509 AN6308S (E-E/V-V SELECT)
FL505 3.58MHz B.P.F
QR518 UN2213 (E-E/V-V SELECT/V-V:ON)
QR517 UN2213 (E-E/V-V SELECT/V-V:ON)
Q552 2SC2295 (C. E-E AMP)
Q553 2SA1022 (C. E-E OUT)
Q554 2SC2295 (C. E-E OUT)
Q555 2SD601 (C. E-E AMP)
C. E-E LEVEL
Q01
Q02
X502 VSX0160
TP3509 0.45Vp-p S-VHS/VHS REC 3.58MHz
TP3508 0.4Vp-p S-VHS/VHS REC
Q508 2SB709 (3.58MHz OSC)
11
12
13
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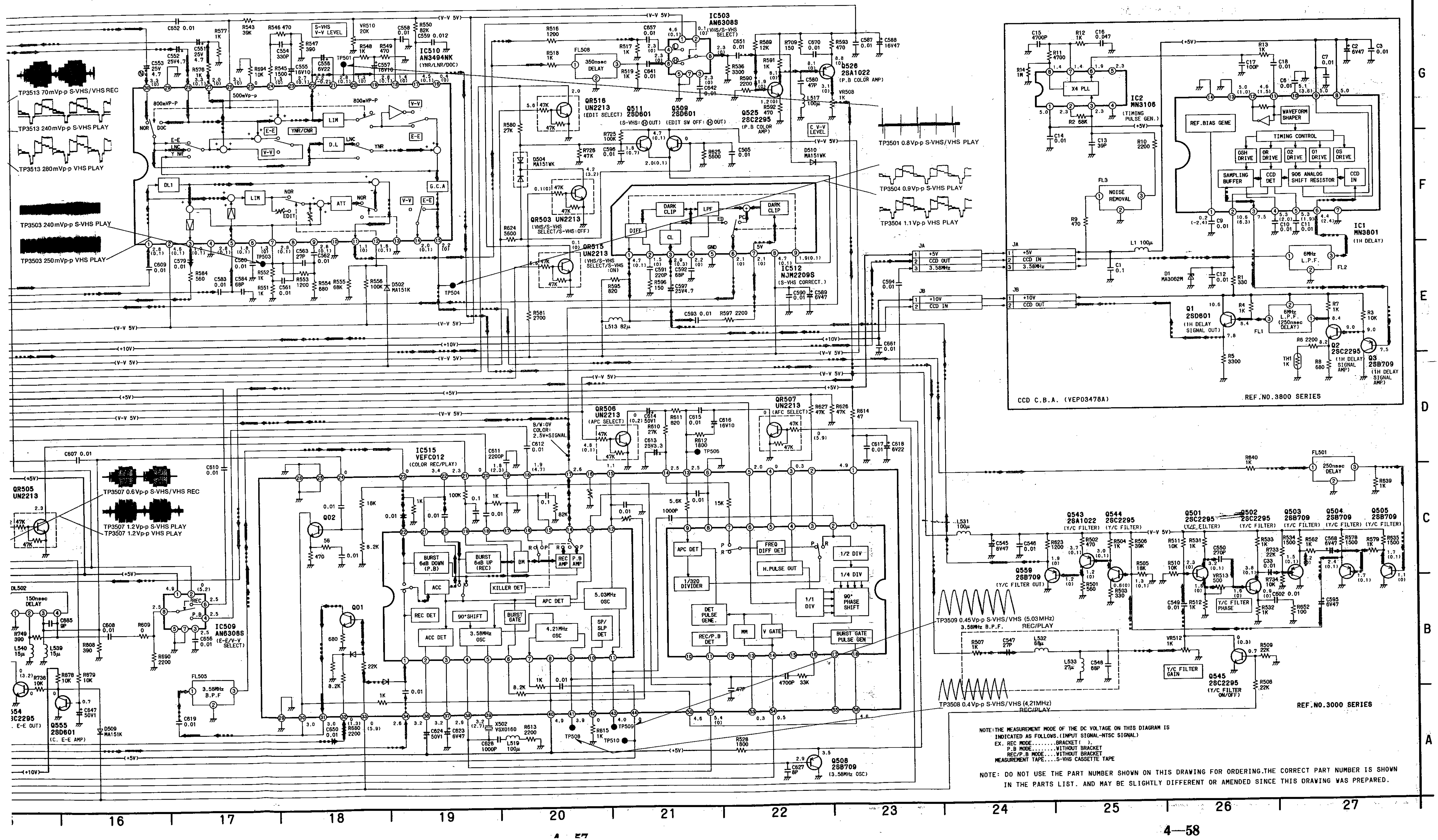
23

MAIN SIGNAL PATH IN REC MODE (S-VHS)


IC510 AN3494NK (YNR/LNR/DOC)
IC503 AN6308S (VHS/S-VHS SELECT)
IC512 NJM2209S (S-VHS CORRECT.)
IC515 VEFC012 (COLOR REC/PLAY)
IC509 AN6308S (E-E/V-V SELECT)
IC1 MN3801 (1H DELAY)
IC2 MN3106 (TIMING PULSE GEN.)
QR516 UN2213 (EDIT SELECT)
Q511 2SD601 (S-VHS: H OUT)
Q509 2SD601 (EDIT SW OFF: H OUT)
Q525 2SC2295 (P.B COLOR AMP)
Q526 2SA1022 (P.B COLOR AMP)
QR503 UN2213 (VHS/S-VHS SELECT/S-VHS:OFF)
QR515 UN2213 (VHS/S-VHS SELECT/S-VHS:ON)
QR506 UN2213 (APC SELECT)
QR507 UN2213 (AFC SELECT)
QR505 UN2213
Q02
Q01
Q554 2SC2295 (E-E OUT)
Q555 2SD601 (C. E-E AMP)
Q508 2SB709 (3.58MHz OSC)
Q543 2SA1022 (Y/C FILTER)
Q544 2SC2295 (Y/C FILTER)
Q559 2SB709 (Y/C FILTER OUT)
Q501 2SC2295 (Y/C FILTER)
Q502 2SC2295 (Y/C FILTER)
Q503 2SB709 (Y/C FILTER)
Q504 2SB709 (Y/C FILTER)
Q505 2SB709 (Y/C FILTER)
Q545 2SC2295 (Y/C FILTER ON/OFF)
Q1 2SD601 (1H DELAY SIGNAL OUT)
Q2 2SC2295 (1H DELAY SIGNAL AMP)
Q3 2SB709 (1H DELAY SIGNAL AMP)
TP3513 70mVp-p S-VHS/VHS REC
TP3513 240mVp-p S-VHS PLAY
TP3513 280mVp-p VHS PLAY
TP3503 240mVp-p S-VHS PLAY
TP3503 250mVp-p VHS PLAY
TP3501 0.8Vp-p S-VHS/VHS PLAY
TP3504 0.9Vp-p S-VHS PLAY
TP3504 1.1Vp-p VHS PLAY
TP3507 0.6Vp-p S-VHS/VHS REC
TP3507 1.2Vp-p S-VHS PLAY
TP3507 1.2Vp-p VHS PLAY
TP3509 0.45Vp-p S-VHS/VHS (5.03MHz)
3.58MHz B.P.F.
REC/PLAY
TP3508 0.4Vp-p S-VHS/VHS (4.21MHz)
REC/PLAY
DL1
LIM
ATT
D.L
YNR/CNR
G.C.A
E-E
V-V
DIFF
DARK CLIP
LPF
CL
BURST 6dB DOWN (P.B)
BURST 6dB UP (REC)
ACC
ACC DET
REC DET
90° SHIFT
3.58MHz OSC
BURST GATE
KILLER DET
APC DET
4.21MHz OSC
5.03MHz OSC
SP/SLP DET
1/320 DIVIDER
DET PULSE GENE.
REC/P.B DET
MM
V GATE
FREQ DIFF DET
H.PULSE OUT
1/2 DIV
1/4 DIV
1/1 DIV
90° PHASE SHIFT
BURST GATE PULSE GEN
FL508 350nsec DELAY
FL505 3.58MHz B.P.F
DL502 150nsec DELAY
FL501 250nsec DELAY
Y/C FILTER PHASE
Y/C FILTER GAIN
JA
JB
+5V
CCD OUT
3.58MHz
+10V
CCD IN
X4 PLL
REF.BIAS GENE
WAVEFORM SHAPER
TIMING CONTROL
SAMPLING BUFFER
CCD DET
906 ANALOG SHIFT RESISTOR
FL3 NOISE REMOVAL
6MHz L.P.F.
FL1 6MHz L.P.F. (250nsec DELAY)
CCD C.B.A. (VEP03478A)
REF.NO.3800 SERIES
REF.NO.3000 SERIES
16
17
18
19
20
21
22
23
24
25
26
27
A
B
C
D
E
F
G

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS INDICATED AS FOLLOWS. (INPUT SIGNAL-NTSC SIGNAL)

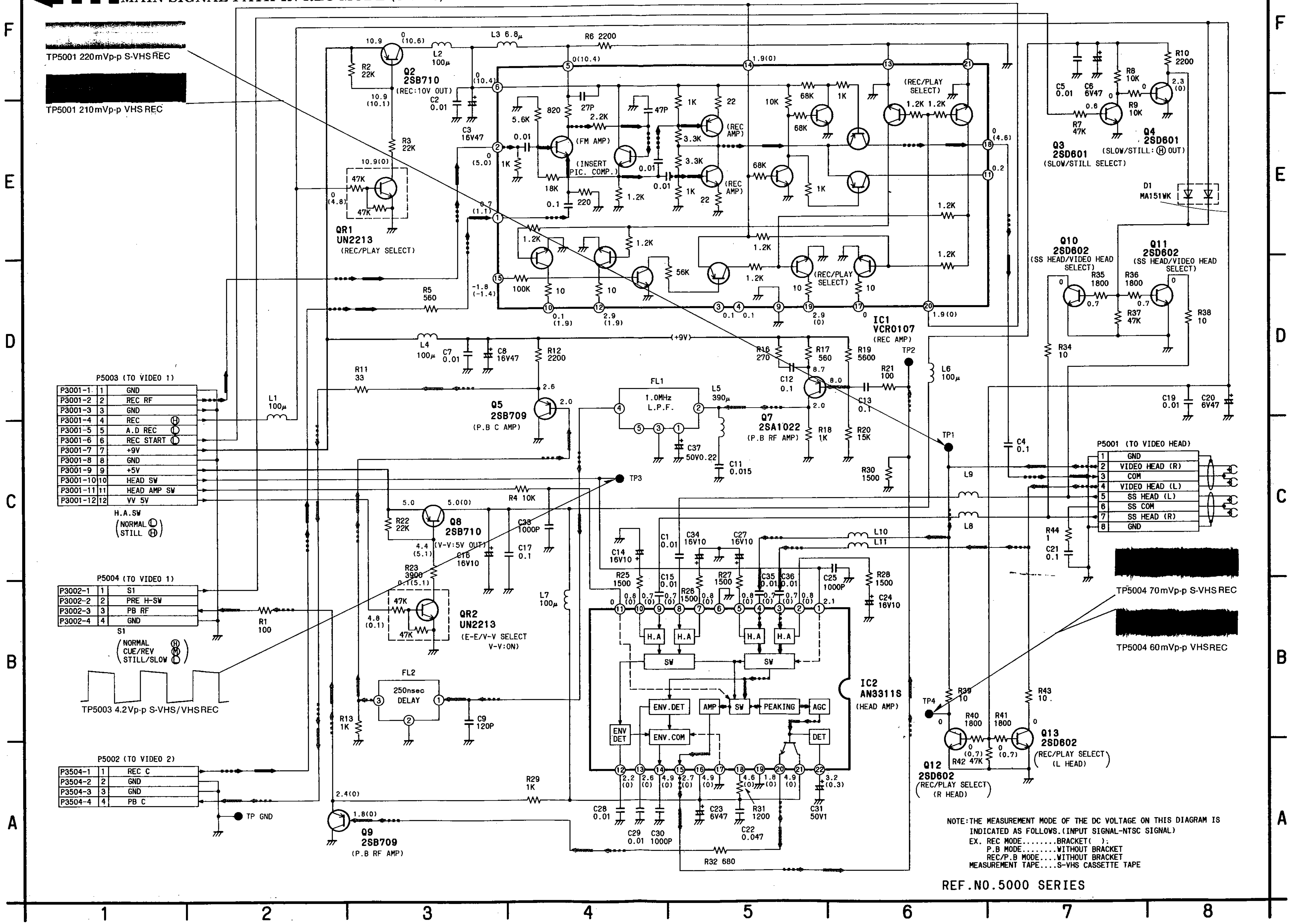
EX. REC MODE........BRACKET( ).
P.B MODE........WITHOUT BRACKET
REC/P.B MODE....WITHOUT BRACKET
MEASUREMENT TAPE....S-VHS CASSETTE TAPE

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST. AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

HEAD AMP SCHEMATIC DIAGRAM

MAIN SIGNAL PATH IN PLAYBACK MODE (VHS)
MAIN SIGNAL PATH IN REC MODE (S-VHS)
MAIN SIGNAL PATH IN REC MODE (VHS)
MAIN SIGNAL PATH IN REC MODE (S-VHS)

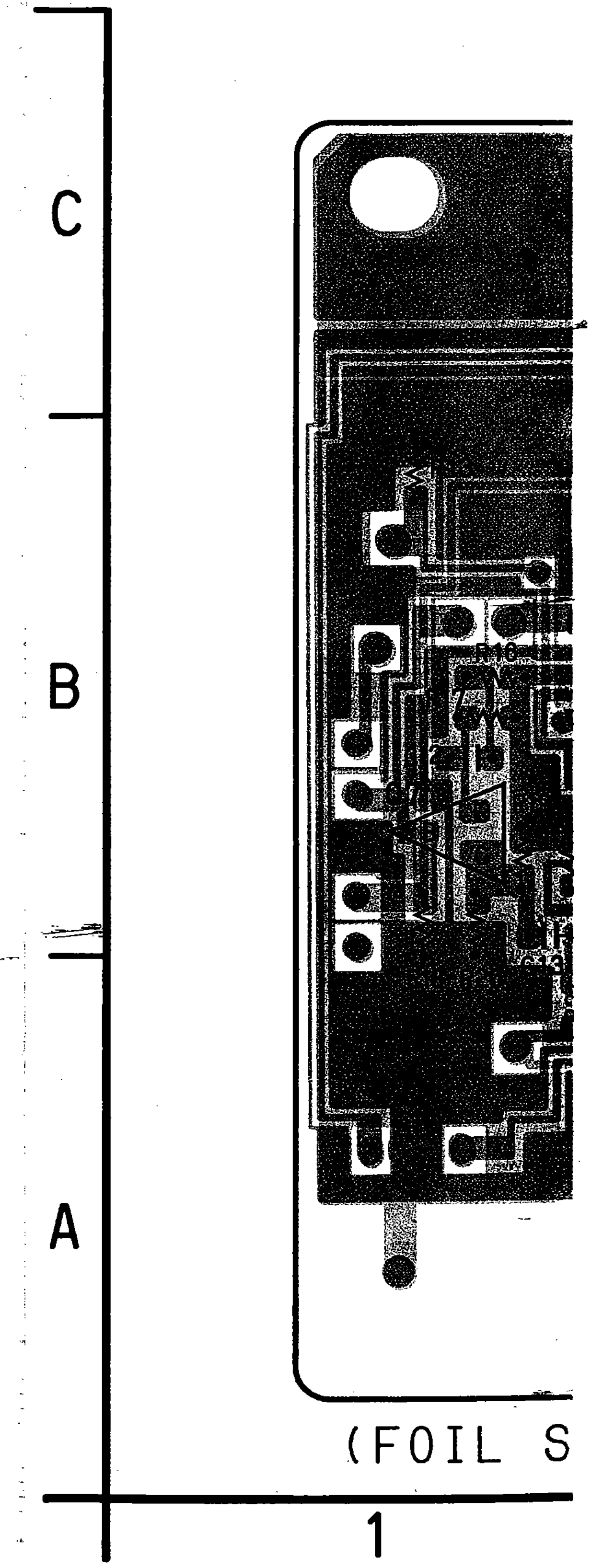
NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST. AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.



NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS INDICATED AS FOLLOWS.(INPUT SIGNAL-NTSC SIGNAL)
EX. REC MODE........BRACKET( );
P.B MODE........WITHOUT BRACKET
REC/P.B MODE....WITHOUT BRACKET
MEASUREMENT TAPE....S-VHS CASSETTE TAPE

REF.NO.5000 SERIES

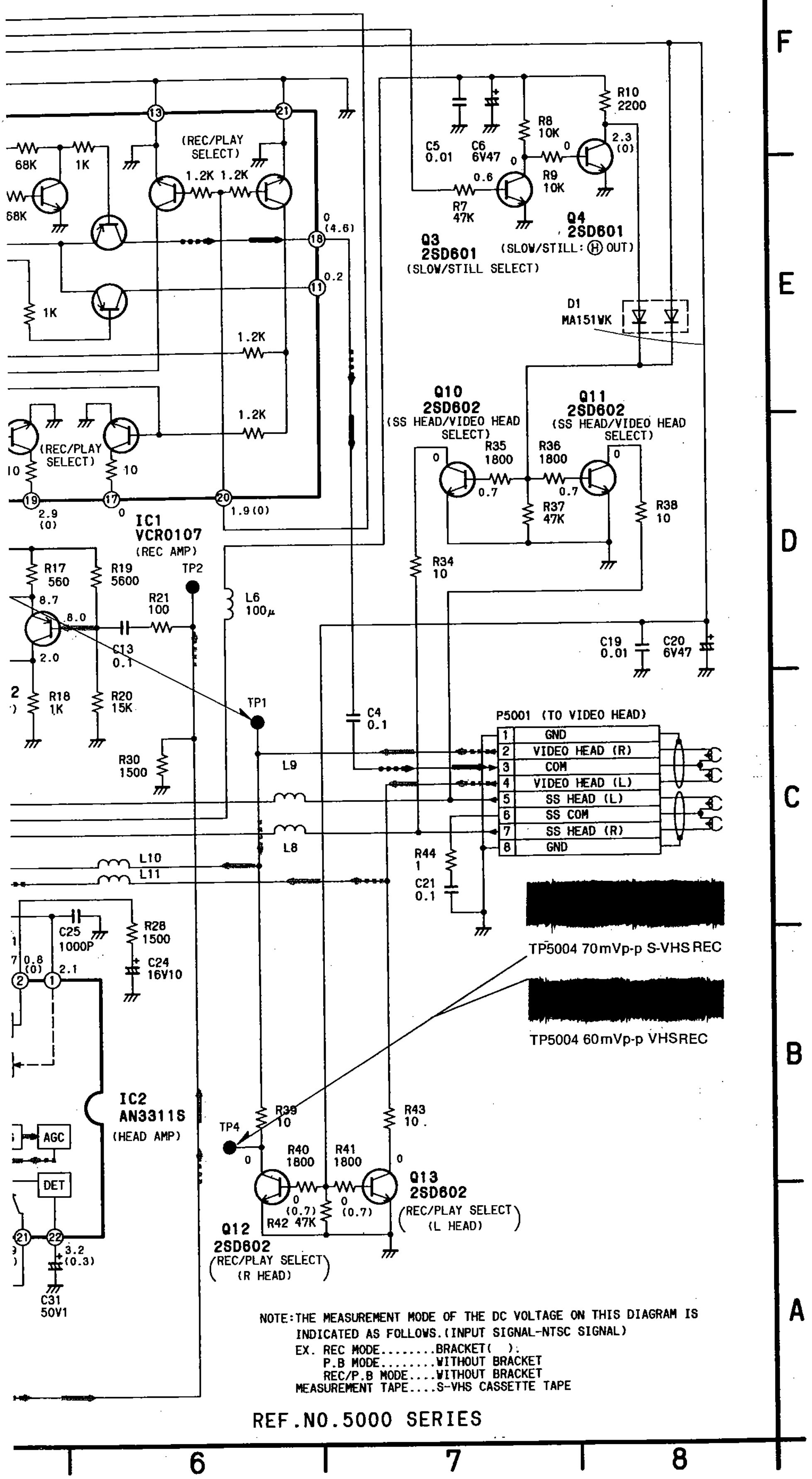
HEAD AMP C.B.A. (VEP0



ODE (VHS)

VHS)

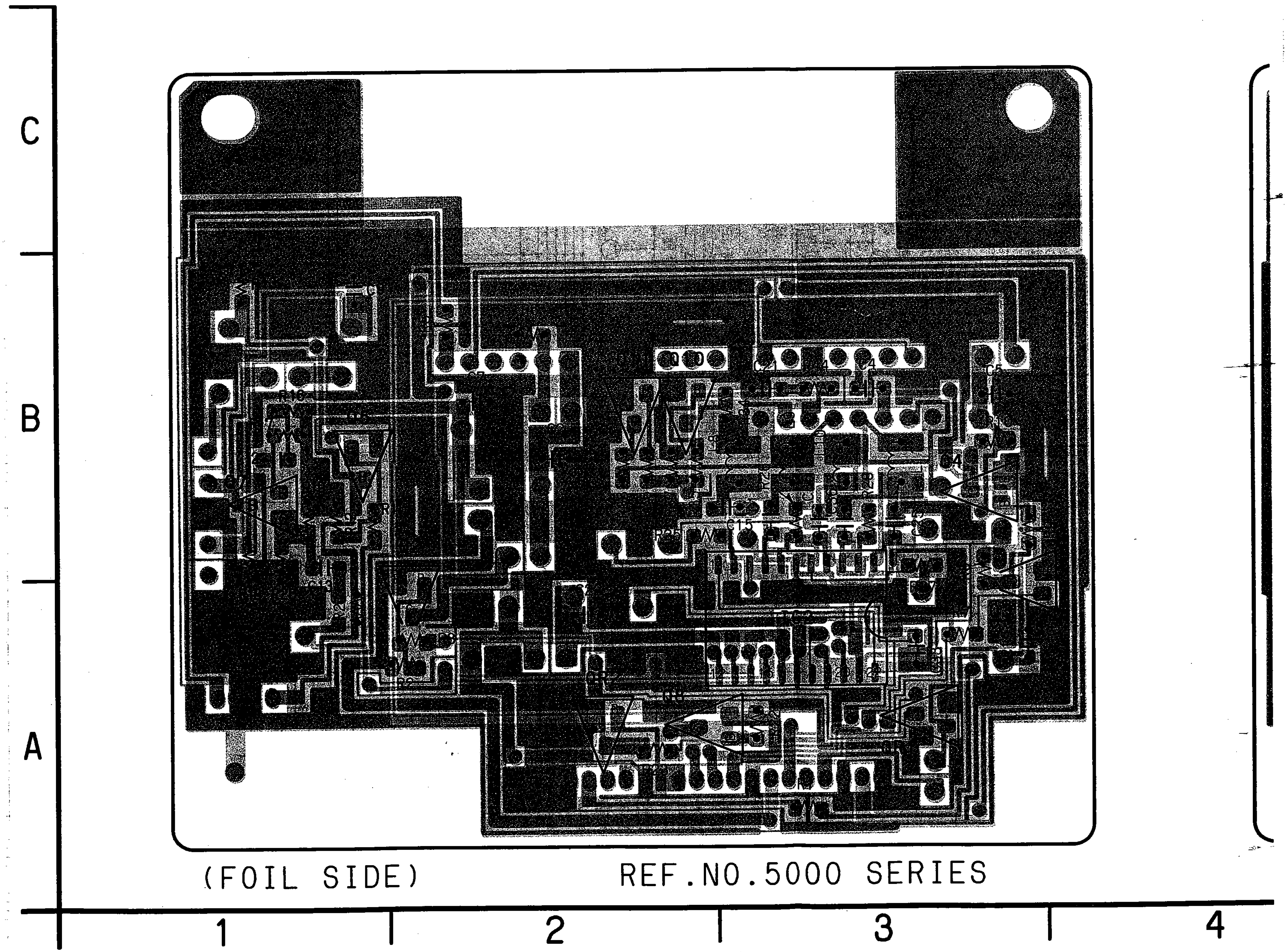
UMBER SHOWN ON THIS DRAWING FOR ORDERING.THE CORRECT PART NUMBER IS SHOWN
) MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.



NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS INDICATED AS FOLLOWS.(INPUT SIGNAL-NTSC SIGNAL)
EX. REC MODE........BRACKET( ).
P.B MODE........WITHOUT BRACKET
REC/P.B MODE.....WITHOUT BRACKET
MEASUREMENT TAPE....S-VHS CASSETTE TAPE

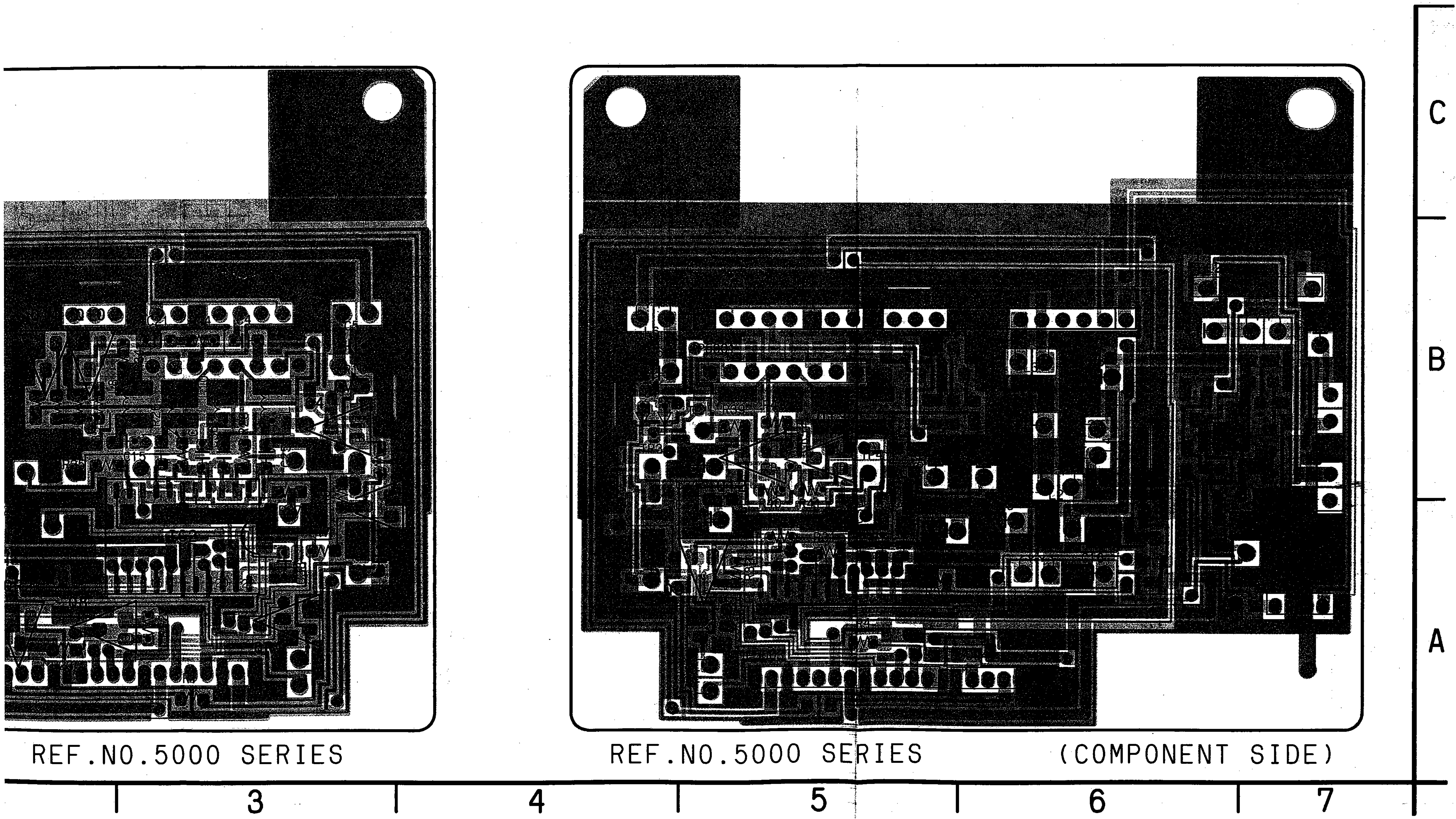
REF.NO.5000 SERIES

HEAD AMP C.B.A. (VEP05107A)



(FOIL SIDE)

REF.NO.5000 SERIES



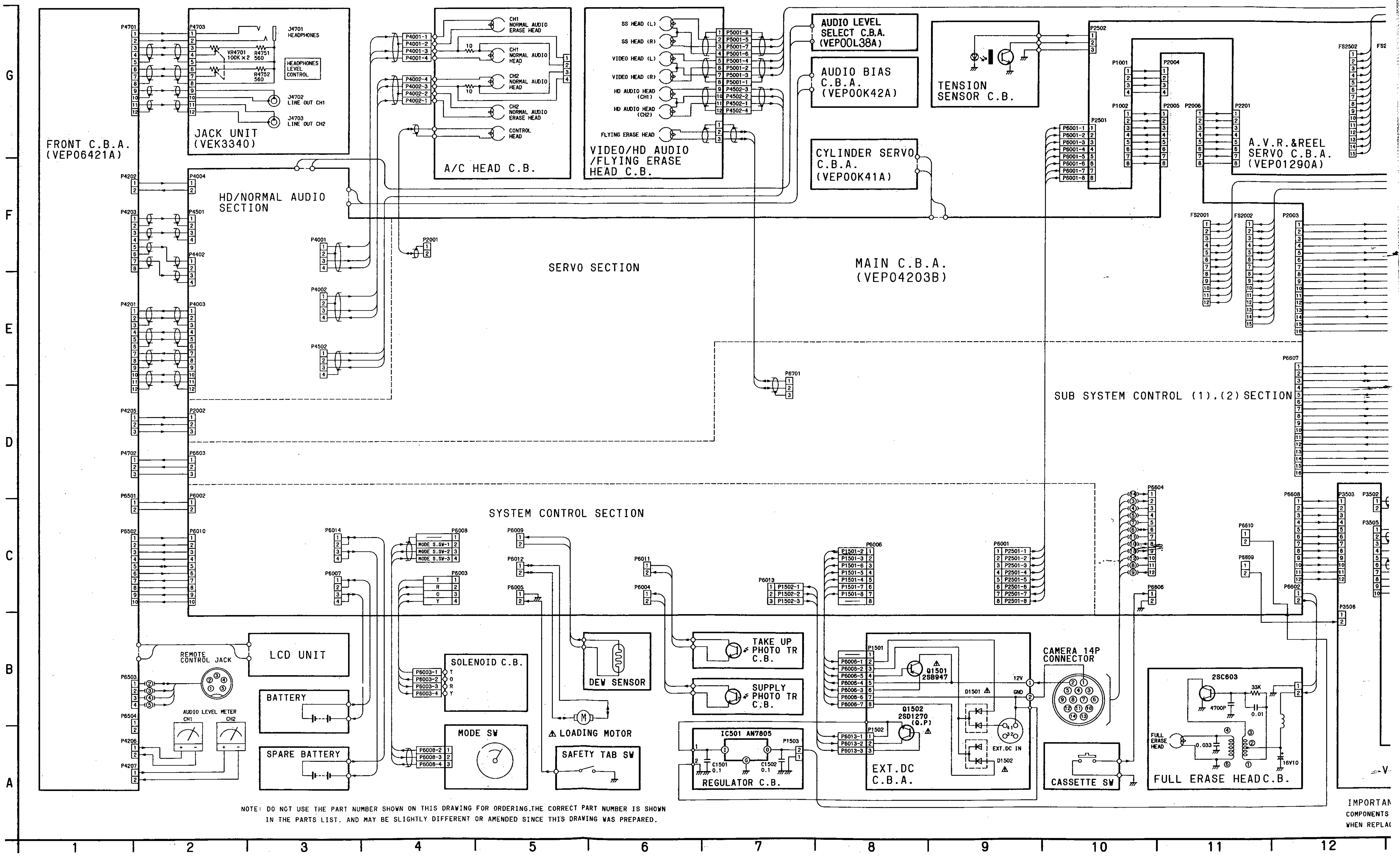
REF.NO.5000 SERIES

REF.NO.5000 SERIES (COMPONENT SIDE)

HEAD AMP C.B.A.	
Transistor	
Q5002	B-2 Ⓕ
Q5003	A-3 Ⓕ
Q5004	B-3 Ⓕ
Q5005	B-1 Ⓕ
Q5007	B-1 Ⓕ
Q5008	A-2 Ⓕ
Q5009	B-4 ©
Q5010	B-2 Ⓕ
Q5011	B-2 Ⓕ
Q5012	B-5 ©
Q5013	B-5 ©
Transistor & Resistor	
QR5001	A-3 Ⓕ
QR5002	A-2 Ⓕ
Integrated Circuit	
IC5001	B-5 ©
IC5002	A-3 Ⓕ
Test Point	
TP5001	B-5 ©
TP5002	A-7 ©
TP5003	B-4 ©
TP5004	B-5 ©
TP GND	A-6 ©
Connector	
P5001	B-5 ©
P5002	A-7 ©
P5003	A-5 ©
P5004	A-6 ©

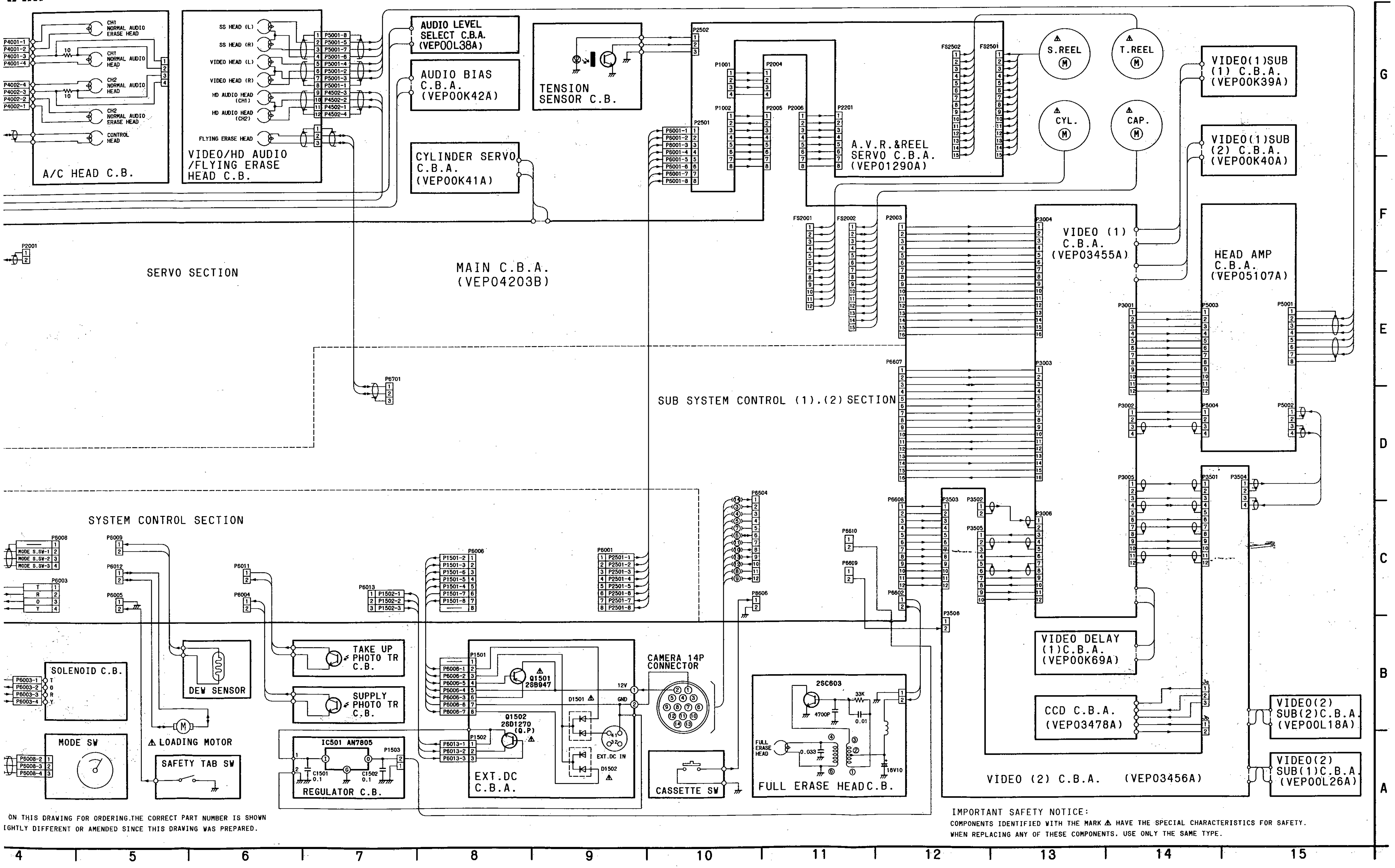
ADDRESS INFORMATION
© ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

INTERCONNECTION SCHEMATIC DIAGRAM



NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST. AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

RAM

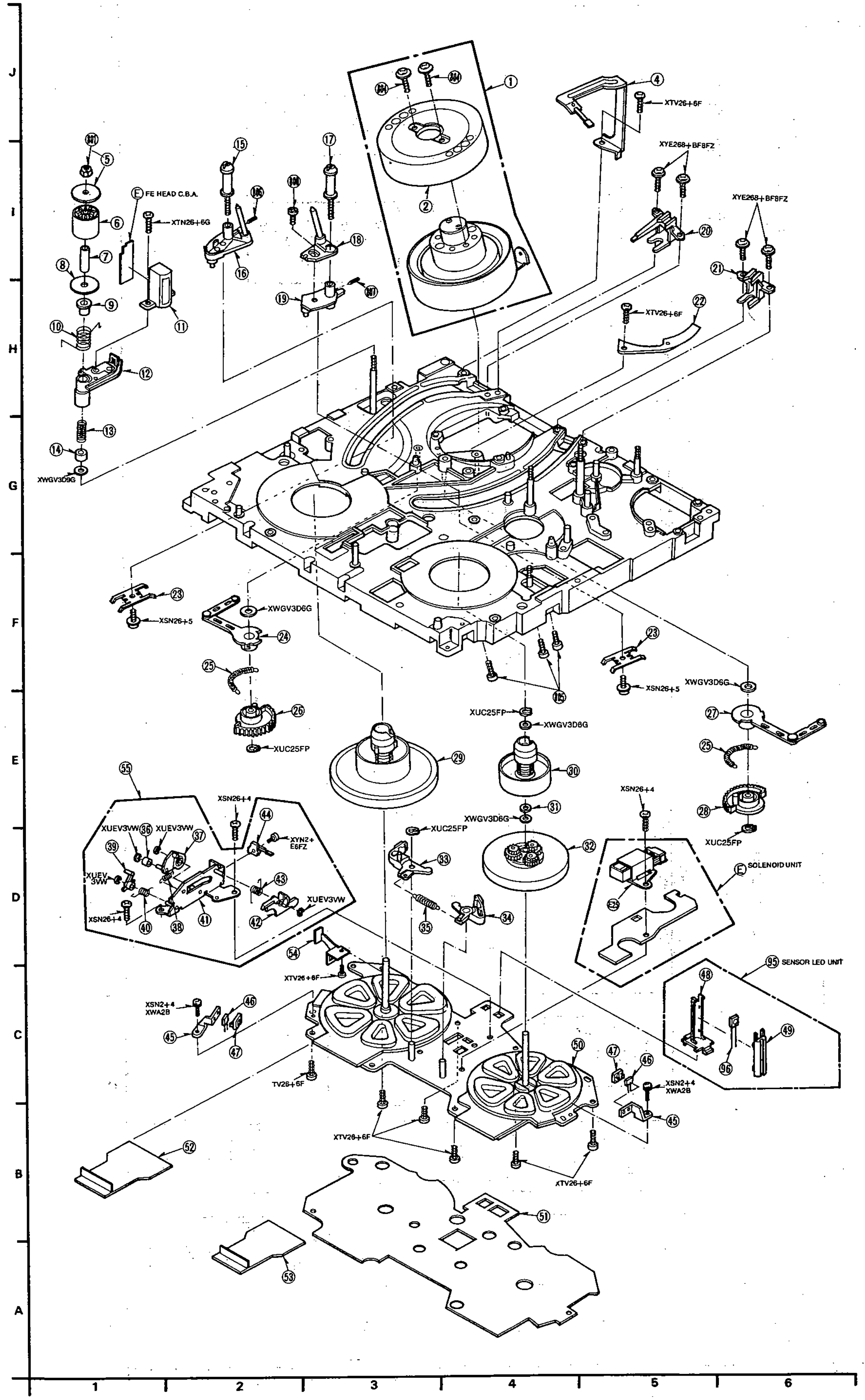


ON THIS DRAWING FOR ORDERING.THE CORRECT PART NUMBER IS SHOWN
IGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

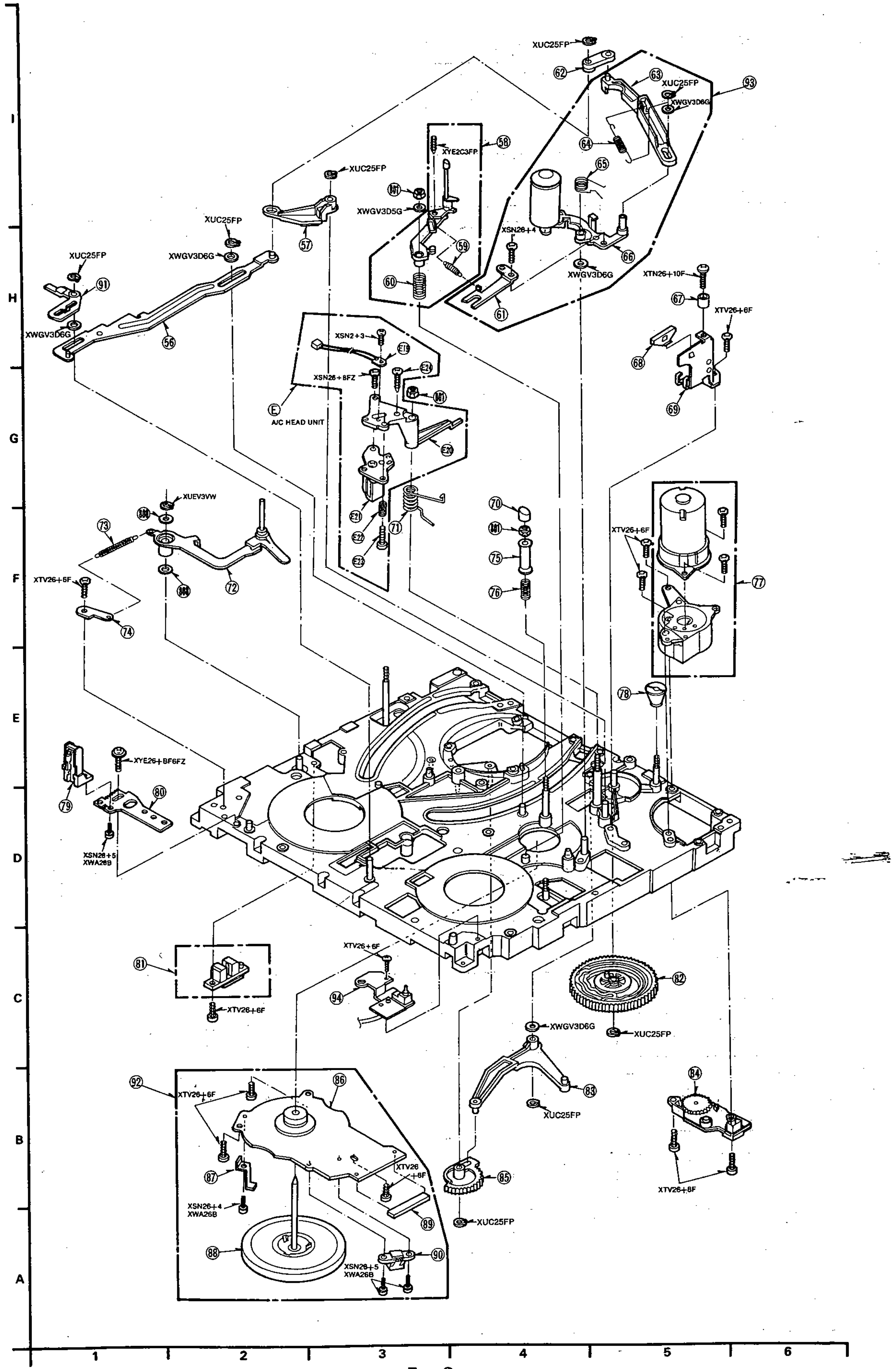
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS. USE ONLY THE SAME TYPE.

EXPLODED VIEWS

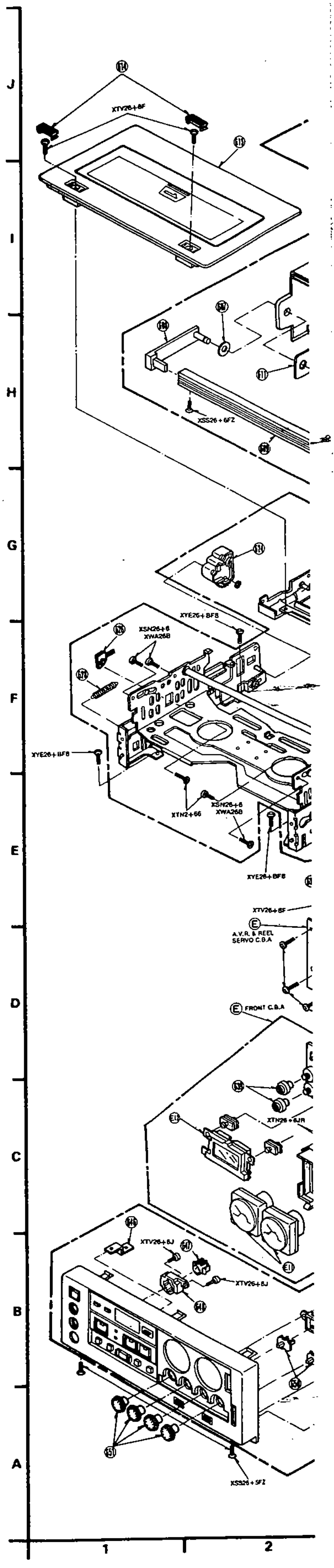
❶ Transport Section

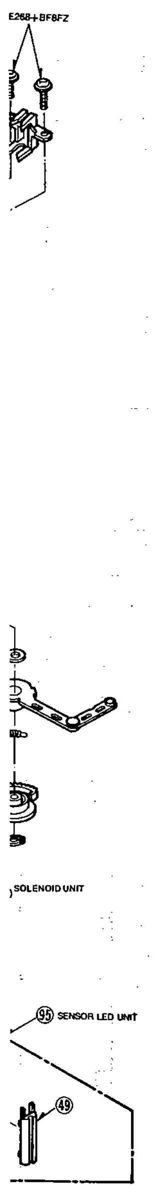


❷ Moving Mechanism Section

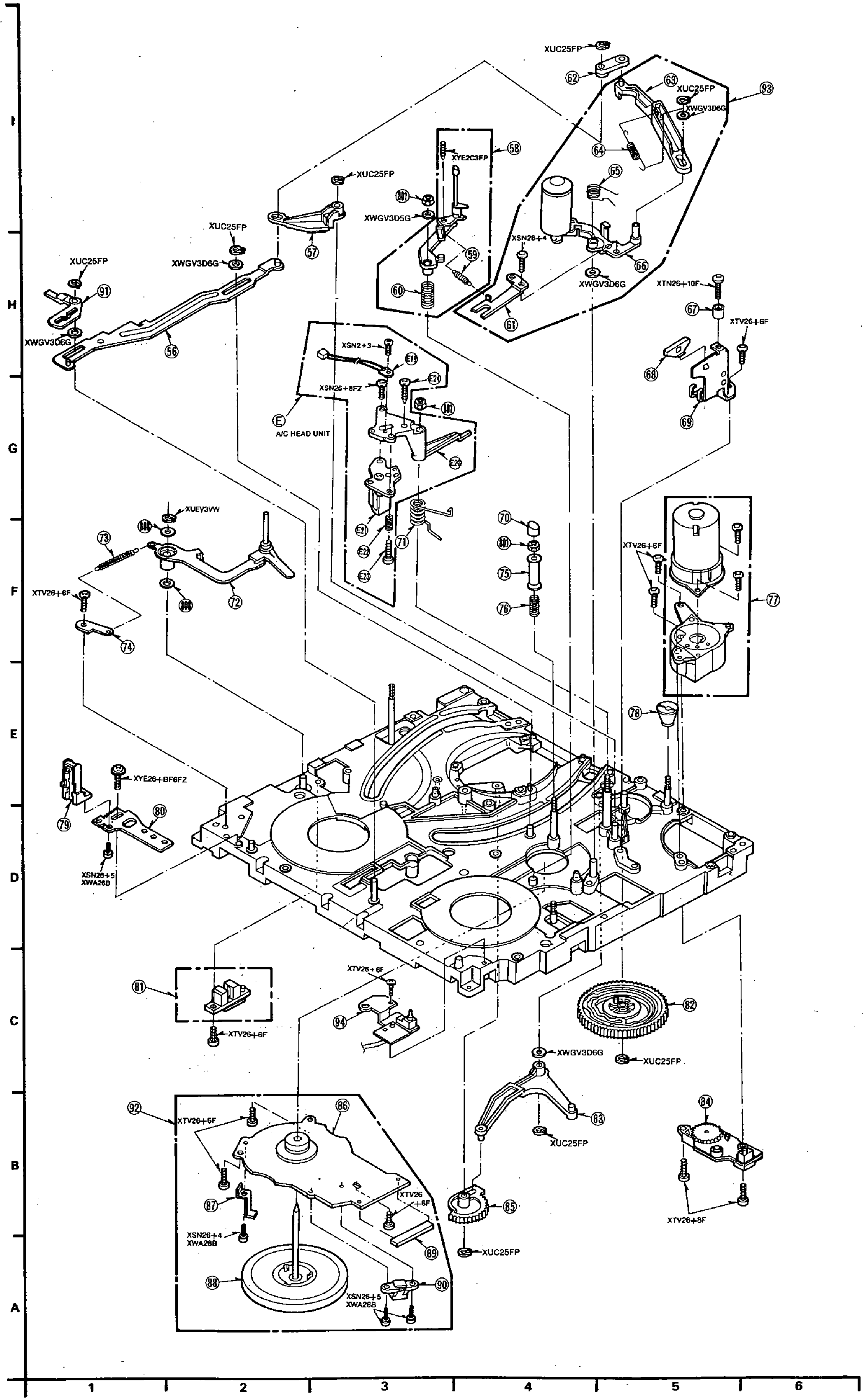


❸ Chassis Parts

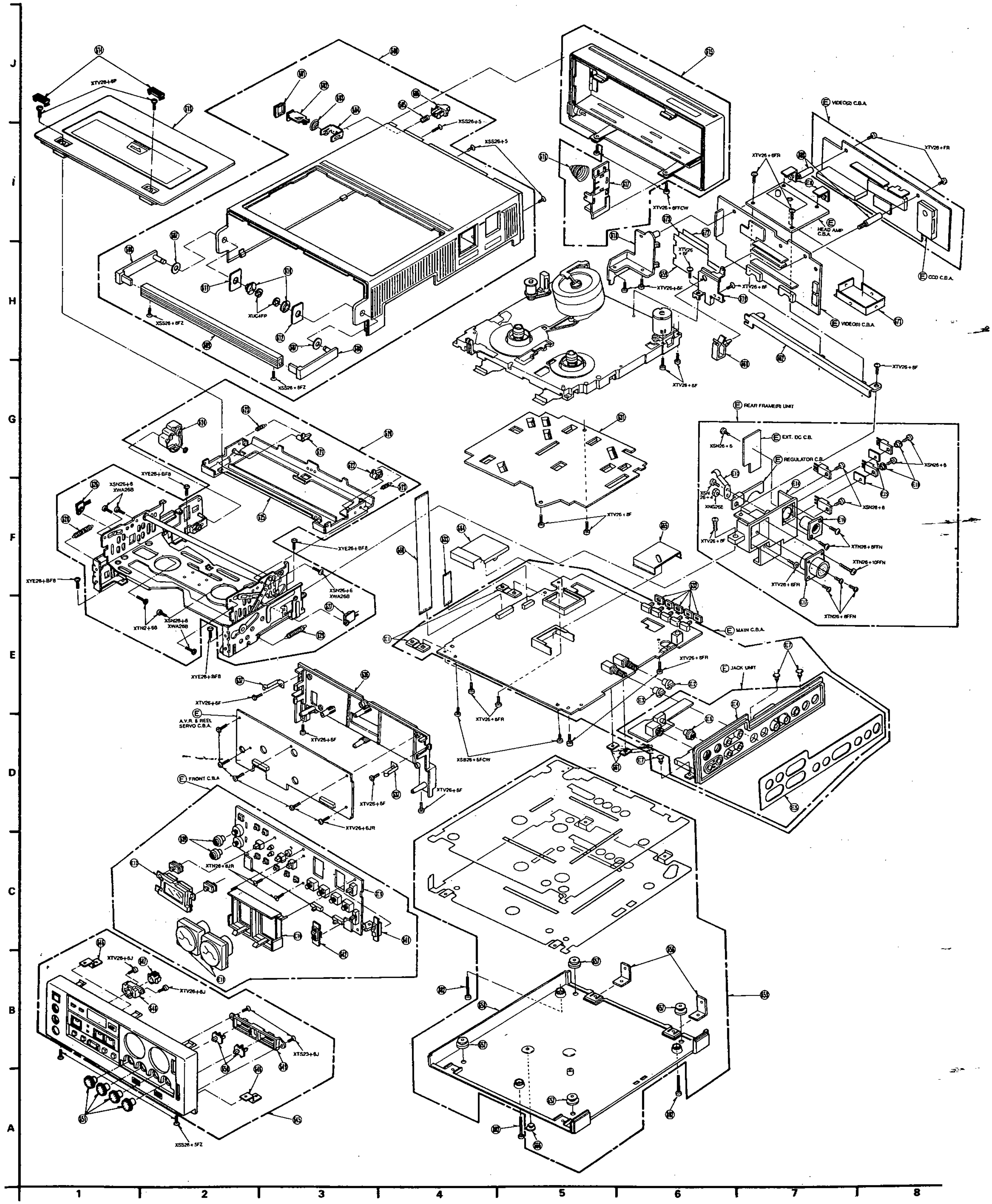




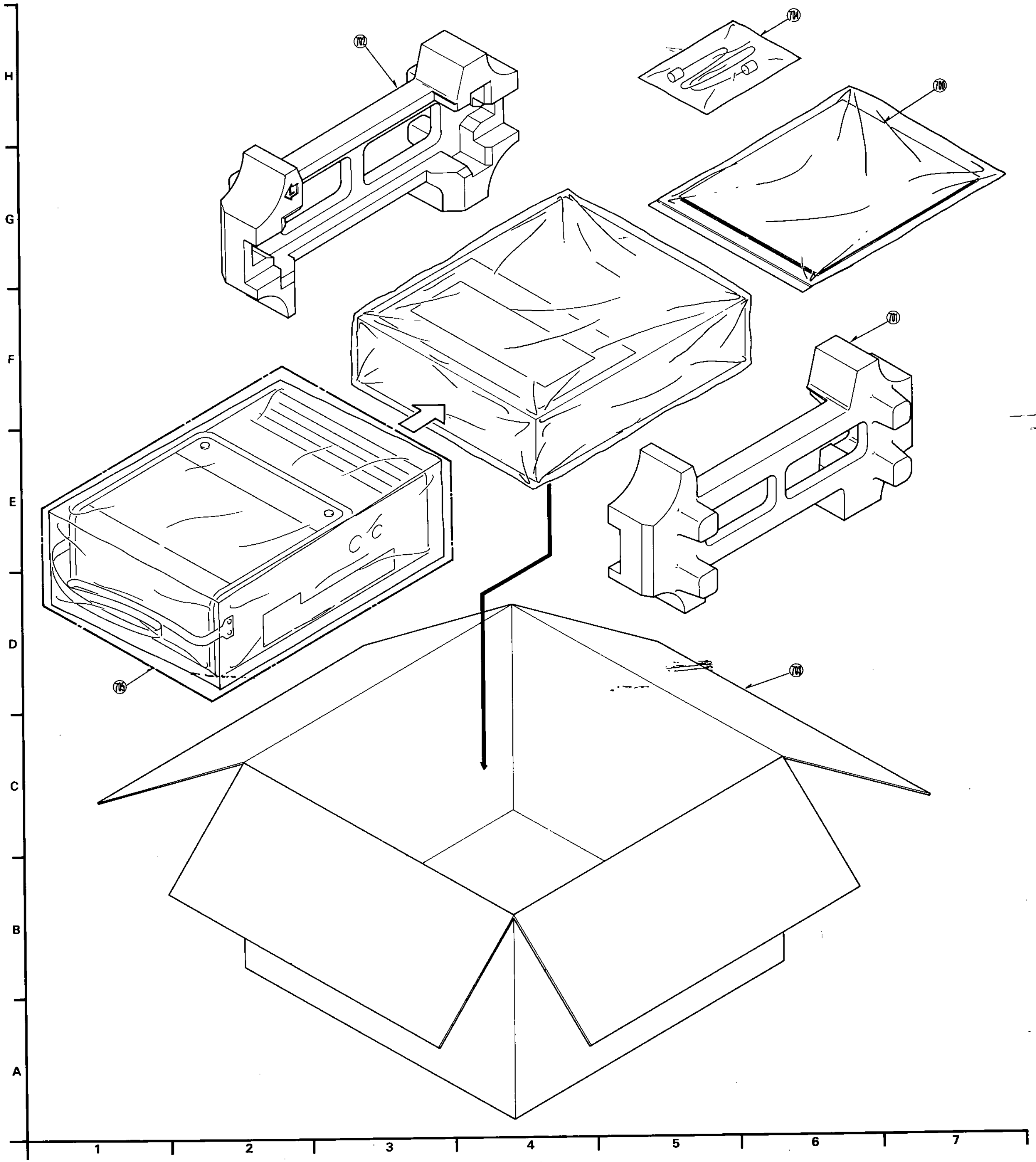
❷ Moving Mechanism Section



❸ Chassis Parts, Cassette Up Mechanism & Casing Parts Section



❹ *Packing Parts Section*



ORDER NO. VRD8710M210
D1
(Date of issue : NOV. 1987)

Replacement Parts List

Portable Video Cassette Recorder

Panasonic S-VHS Hi-Fi
Professional/Industrial Video

AG-7400

Notes :

1. ● Be sure to make your orders of replacement parts according to this list.
   - ● " 〈R〉" in Remark column indicates recommended parts.
   - ● " 〈M〉" in Remark column indicates needed in the periodical maintenance.
2. IMPORTANT SAFETY NOTICE
   Components identified by " ! " have special characteristics important for safety.
   When replacing any of these components, use only the original ones.
   Meaning of simbol ! on this parts list is exactly the same as simbol ⚠ on Schematic and Circuit Board Diagrams.
3. Unless otherwise specified;
   All resistors are in OHMS (Ω), K=1,000Ω, M=1,000KΩ.
4. ITEM NUMBERS WITH CAPITAL LETTER E
   Item numbers with capital letter E (Example : E1, E2, ...) in Ref. No. column mean that parts so listed are shown with the E item numbers in the exploded views.
5. C.B.A. marked with "■" show below the main assembled parts.
6. When ordering parts, use part No. only from Part No. column.
7. Printed circuit board assembly with mark (NLA) is no longer available after discontinuation of the product.

CONTENTS

SERVICING FIXTURES & TOOLS LIST 1
MECHANICAL REPLACEMENT PARTS LIST 2
ELECTRICAL REPLACEMENT PARTS LIST 4
A. V. R. & REEL SERVO C.B.A. 4
MAIN C.B.A. (CYLINDER SERVO C.B.A.・AUDIO BIAS C.B.A.・AUDIO LEVEL SELECT C.B.A.・JACK UNIT) 5
VIDEO(1) C.B.A. (VIDEO(1) SUB(1) C.B.A.・VIDEO(1) SUB(2) C.B.A.・VIDEO DELAY C.B.A.) 12
VIDEO(2) C.B.A. (CCD C.B.A.・VIDEO(2) SUB(1) C.B.A.・VIDEO(2) SUB(2) C.B.A.) 15
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FE HEAD C.B.A. 21
REAR FRAME (R) UNIT 22
A/C HEAD UNIT 22
SOLENOID C.B UNIT 22

1. SERVICING FIXTURES & TOOLS LIST

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
		VFM8080HMFPH	VHS Alignment Tape	1	
		VFK0329	Post Adj. Screwdriver	1	
		VFK0132	Back Tension Meter	1	
			(Tentelometer,		(T2-H7-UM)
			Made in U.S.A.)		
		VFK0133	Dial Torque Gauge	1	
		VFK0180	Plastic Clamper Only	1	
		VFK0134	Adaptor for VFK0133	1	
		VFK0190	Reel Table Height Fixture	1	OR VFKS0009
		VFK0188	Cassette Holder Fixture	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
		VFK0191	Post Adj. Plate	1	OR VFKS0010
		VFK0328	H-Position Adj. Fixture	1	OR VFKS0003
		VFK0330	Fine Adj. Screwdriver	1	
			(3mm Phi)		
		VFK0335	Retaining Ring Remover	1	
		VFK0326	Hex.Wrench Set	1	
		VFK0343	Check Light	1	
		MOR265	Morlytone Grease	1	
		VFK27	Head Cleaning Stick	1	

2. MECHANICAL REPLACEMENT PARTS LIST

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
1(1)		VEG0523	DD CYLINDER UNIT	1	<R> <!> <M>
2(1)		VEH0354	UPPER CYLINDER UNIT	1	<R> <M>
4(1)		VXS0060	EARTH PLATE UNIT	1	
5(1)		VMX1267	UPPER LIMITER	1	
6(1)		VXP0893	LIMITER ROLLER	1	
7(1)		VMX1268	COLLAR (B)	1	
8(1)		VMX1267	LOWER LIMITER	1	
9(1)		VDB0721	LIMITER STAND	1	
10(1)		VMB1231	FE HEAD LEVER SPRING	1	
11(1)		VBS0031	FE HEAD	1	<R> <M>
12(1)		VXL1188	FE HEAD LEVER	1	
13(1)		VMB1239	LIMITER SPRING	1	
14(1)		VMX0680	COLLAR (A)	1	
15(1)		VXP0761	ROLLER POST UNIT (S)	1	
16(1)		VXA2039	SHAFT HOLDER (S) UNIT	1	
17(1)		VXP0302C	ROLLER POST UNIT (T)	1	
18(1)		VXA2041	INCLIND BASE (T) UNIT	1	
19(1)		VXA2042	SHAFT HOLDER (T) UNIT	1	
20(1)		VMD0613	POST STOPPER (S)	1	
21(1)		VMD0614	POST STOPPER (T)	1	
22(1)		VMD0609	INCLIND SUPPORT	1	
23(1)		VMA6422	SHAFT HOLDER PLATE	2	
24(1)		VXL1193	LOADING ARM (S) UNIT	1	
25(1)		VMB1232	LOADING SPRING	2	
26(1)		VXP0561	LOADING GEAR (S) UNIT	1	
27(1)		VXL1191	LOADING ARM (T) UNIT	1	
28(1)		VXP0560	LOADING GEAR (T) UNIT	1	
29(1)		VXR0122	SUPPLY REEL TABLE UNIT	1	<R> <M>
30(1)		VXR0121	TAKEUP REEL TABLE UNIT	1	<R> <M>
31(1)		VMX0708D	THRUST WASHER	1	
32(1)		VXP0564	TAKEUP ROTOR UNIT	1	<R>
33(1)		VXZ0173	MAIN BRAKE (S) UNIT	1	<R> <M>
34(1)		VXZ0174	MAIN BRAKE (T) UNIT	1	<R> <M>
35(1)		VMB1241	BRAKE SPRING	1	
36(1)		VDP0969	LOCK ROLLER	1	
37(1)		VXA2035	LOCK BOARD UNIT	1	
38(1)		VMB1227	LOCK BOARD SPRING	1	
39(1)		VML1562	LOCK LEVER (B)	1	
40(1)		VMB1225	LOCK LEVER (B) SPRING	1	
41(1)		VXA2034	LOCK PLATE UNIT	1	
42(1)		VML1561	LOCK LEVER (A)	1	
43(1)		VMB1226	LOCK LEVER (A) SPRING	1	
44(1)		VSH0019	REEF SWITCH	1	<R>
45(1)		VMD0611	FG SUPPORT (1)	2	
46(1)		HW300B	HALL IC	2	<R>
47(1)		VMD0621	FG SUPPORT (2)	2	
48(1)		VMX0682	LED HOLDER (R)	1	
49(1)		VMX0683	LED HOLDER (L)	1	
50(1)		VXA2119	STATOR BASE UNIT	1	<R> <!>
51(1)		VMZ0565	INSULATE SHEET	1	
52(1)		VWJ0158	SUPPLY REEL MOTOR FPC	1	
53(1)		VWJ0159	TAKEUP REEL MOTER FPC	1	
54(1)		VMP0987	CLAMP ANGLE	1	
55(1)		VXA2033	CASSETTE LOCK UNIT	1	
56(2)		VXL1199	MAIN LEVER UNIT	1	
57(2)		VXL1198	BRAKE ARM UNIT	1	
58(2)		VXL1196	P5 ARM UNIT	1	
59(2)		VMB1237	PIN PRESSURE SPRING	1	
60(2)		VMB1299	P5 SPRING	1	
61(2)		VML1565	P5 KICK LEVER	1	
62(2)		VML1563	GUIDE LEVER	1	
63(2)		VMM0130	PRESSURE LEVER	1	
64(2)		VMB1228	PRESSURE SPRING	1	
65(2)		VMB1238	PRESSURE ARM SPRING	1	
66(2)		VXL1229	PRESSURE ARM (1) UNIT	1	<R> <M>
67(2)		VDB0740	STOPPER BOSS	1	
68(2)		VMA6413	OPENER COVER	1	
69(2)		VMA6421	OPENER ANGLE	1	
70(2)		VMD0619	P4 POST CAP	1	
71(2)		VMB1240	A/C HEAD HEIGHT SPRING	1	
72(2)		VXL1643	TENSION ARM UNIT	1	
73(2)		VMB1739	TENSION ARM SPRING	1	
74(2)		VMD0604	TENSION ARM SPRING TIE (C)	1	
75(2)		VMX0681	POST SLEEVE	1	
76(2)		VMB1239	LIMITER SPRING	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
77(2)		VEM0255	LOADING MOTOR UNIT	1	<R> <!> <M>
78(2)		VHN0039	ADJUST NUT	1	
79(2)		VSH0023	SAFETY TAB SWITCH	1	<R>
80(2)		VMA6414	SASFETY TAB BASE	1	
81(2)		VEK2742	TENSION SENSOR UNIT	1	
82(2)		VXP0562	CAM GEAR UNIT	1	<R> <M>
83(2)		VXL1189	LOCK ARM UNIT	1	
84(2)		VSS0099	MODE SELECT SW	1	<R> <M>
85(2)		VDG0161	LOCK GEAR	1	
86(2)		VEK2113	CAPSTAN STATOR UNIT	1	<R> <!>
87(2)		VMA6470	STOPPER	1	
88(2)		VXP0557	CAPSTAN ROTOR UNIT	1	<R>
89(2)		VJS1403	CAPSTAN STATOR CONNECTOR	1	
90(2)		VBK0041	MR.FG SENSOR	1	
91(2)		VDK0009	BRAKE CAM	1	
92(2)		VEM0206	DD CAPSTAN UNIT	1	<R> <!> <M>
93(2)		VXL1325	PRESSURE ROLLER UNIT	1	
94(2)		VXA2987	S-VHS CASSETTE DISTINCTION	1	
			UNIT		
95(1)		VEK2115	SENSOR LED UNIT	1	
96(1)		LN59	SENSOR LED	1	
600(3)		VYK1662	TOP CASE UNIT	1	<R>
601(3)		VGU4011	BATTERY EJECT BUTTON (A)	1	<R>
602(3)		VGQ0614	BATTERY EJECT BUTTON (B)	1	<R>
603(3)		VMB1220	BATTERY EJECT SPRING	1	
604(3)		VMA6400	EJECT BUTTON ANGLE	1	
605(3)		VMB1221	BATTERY STOPPER SPRING	1	<R>
606(3)		VGQ0609	BATTERY STOPPER	1	<R>
607(3)		VGQ0328	HANDLE WASHER	2	
608(3)		VKH0087	HANDLE ARM	2	<R>
609(3)		VKH0178	HANDLE BAR	1	<R>
610(3)		VGQ0331	HANDLE SPACER	1	<R>
611(3)		VMA5910	HANDLE ANGLE (L)	1	<R>
612(3)		VMA5906	HANDLE ANGLE (R)	1	<R>
613(3)		VYF1090	CASSETTE COVER UNIT	1	
614(3)		VGK1222	CASSETTE COVER CAP	2	<R>
615(3)		VYK1665	BATTERY CASE UNIT	1	<R>
616(3)		VMB1219	BATTERY SPRING	1	
617(3)		VJF0189	BATTERY CATCHER	1	<R>
618(3)		VMD0851	REAR FRAME (L)	1	
619(3)		VMP1276	VIDEO C. BOARD ANGLE	1	
620(3)		VXA2551	CASSETTE COMPARTMENT UNIT	1	<R>
621(3)		VXL1225	CASSETTE PRESSURE LEVER (L)	1	
622(3)		VXL1226	CASSETTE PRESSURE LEVER (R)	1	
623(3)		VMB1222	CASSETTE SUPPORT SPRING	1	
624(3)		VDG0169	DAMPER	1	
625(3)		VXA2118	CASSETTE HOLDER	1	
626(3)		VXA2588	SUPPLY PHOTO TR. UNIT	1	<R>
627(3)		VXA2552	TAKE UP PHOTO TR.UNIT	1	<R>
628(3)		VMB1224	HOLDER SPRING (L)	1	
629(3)		VMB1223	HOLDER SPRING (R)	1	
631(3)		VFB0062	MECHANISM COVER	1	
632(3)		VGF0236	BRIND PLATE (A)	5	
633(3)		VWJ12A080MM	FLEXIBLE JAMPER	1	<R>
636(3)		VMD0849	FRONT FRAME	1	
637(3)		VMC0190	SPRING (A)	2	
639(3)		VGU4010	VR KNOB	2	<R>
641(3)		VGU3040	AUDIO METER SELECT KNOB	1	
642(3)		VXU0653	POWER SWITCH KNOB UNIT	1	<R>
645(3)		VYP1954	FRONT PANEL UNIT	1	<R>
646(3)		VMP0937	FRONT MOUNT ANGLE	2	
647(3)		VEK2818	REMOTE CONTROL JACK UNIT	1	
648(3)		VGQ0426	REMOTE CONTROL JACK MOUNT	1	
			ANGLE		
649(3)		VJF0367	MODE SELECT KNOB ANGLE	1	
650(3)		VGU3999	MODE SELECT KNOB	2	<R>
651(3)		VGU3050	VR KNOB	4	<R>
653(3)		VYK1664	BOTTOM CASE UNIT	1	
656(3)		VMP0940	BOTTOM CASE ANGLE	2	
657(3)		VKA0038	FOOT RUBBER	4	
658(3)		VKU0263	BOTTOM CASE	1	
659(3)		VSC2323	CYLINDER SHIELD PLATE	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
660(3)		VWJ15A200MM	FLEXIBLE JAMPER	1	<R>
661(3)		VGF0209	SWITCH COVER (A)	2	
662(3)		VMP1277	SUPPORT ANGLE	1	
664(3)		VSC1818	AUDIO SHIELD COVER	1	
665(3)		VSC2033	BIAS SHIELD COVER	1	
666(3)		VMG0312	RUBBER CAP	1	
668(3)		VJF0013	CLAMPER	1	
671(3)		VSC2109	HEAD AMP SHIELD CASE	1	
672(3)		VMZ1131	INSULATED SHEET (A)	1	
673(3)		VMZ1158	INSULATED SHEET (B)	1	
700(4)		VQT2371	OPERATING INSTRUCTIONS	1	FOR U.S.A. <!><R>
700(4)		VQT2372	OPERATING INSTRUCTIONS	1	FOR CANADA <!><R>
701(4)		VPN1890	CUSHION (R)	1	<R>
702(4)		VPN1891	CUSHION (L)	1	<R>
703(4)		VPG3436	PACKING CASE	1	FOR U.S.A. <R>
703(4)		VPG3437	PACKING CASE	1	FOR CANADA <R>
704(4)		VJA0453	Y/C 4P CABLE	1	
705(1)		VFC0117	CARRYING CASE	1	
800(1)		VHD0162	SCREW	1	
801(2)		VHN0023	NUT	4	
802(3)		VHD0309	SCREW	3	
803(3)		VHD0361	SCREW SPACER	2	
804(1)		XYNV0027	SCREW	2	
805(1)		VHD0081	SCREW	3	
806(1)		XXEV0004	SCREW	1	
807(1)		XYN2+E6FZ	SCREW	1	
808(2)		VMX0239C	WASHER	2	

3. ELECTRICAL REPLACEMENT PARTS LIST

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
		VEP01290A	A.V.R. & REEL SERVO C.B.A.	1	<R>(NLA)
		VEP04203B	MAIN C.B.A.	1	INCLUDING THE
					CYLINDER SERVO
					C.B.A. (VEP00K41A)
					AUDIO BIAS C.B.A.
					(VEP00K42A)
					AUDIO LEVEL SELECT
					C.B.A.(VEP00L38A)
					JACK UNIT(VEK3340)
					<R>(NLA)
		VEP00K41A	CYLINDER SERVO C.B.A.	1	PARTS LIST IS
					INCLUDED IN MAIN
					C.B.A.(VEP04203B)
					<R>(NLA)
		VEP00K42A	AUDIO BIAS C.B.A.	1	PARTS LIST IS
					INCLUDED IN MAIN
					C.B.A.(VEP04203B)
					<R>(NLA)
		VEP00L38A	AUDIO LEVEL SELECT C.B.A.	1	PARTS LIST IS
					INCLUDED IN MAIN
					C.B.A.(VEP04203B)
					<R>(NLA)
		VEK3340	JACK UNIT	1	PARTS LIST IS
					INCLUDED IN MAIN
					C.B.A.(VEP04203B)
					<R>(NLA)
		VEP03455A	VIDEO (1) C.B.A.	1	INCLUDING THE
					VIDEO (1) SUB (1)
					C.B.A.(VEP00K39A)
					VIDEO (1) SUB (2)
					C.B.A.(VEP00K40A)
					VIDEO DELAY (1)
					C.B.A.(VEP00K69A) <R>
					(NLA)
		VEP00K39A	VIDEO (1) SUB (1) C.B.A.	1	PARTS LIST IS
					INCLUDED IN VIDEO (1)
					C.B.A.(VEP03455A) <R>
					(NLA)
		VEP00K40A	VIDEO (1) SUB (2) C.B.A.	1	PARTS LIST IS
					INCLUDED IN VIDEO (1)
					C.B.A.(VEP03455A) <R>
					(NLA)
		VEP00K69A	VIDEO DELAY (1) C.B.A.	1	PARTS LIST IS
					INCLUDED IN VIDEO (1)
					C.B.A.(VEP03455A) <R>
					(NLA)
		VEP03456A	VIDEO (2) C.B.A.	1	INCLUDING THE
					CCD C.B.A.(VEP03478A)
					VIDEO (2) SUB (1)
					C.B.A.(VEP00L26A)
					VIDEO (2) SUB (2)
					C.B.A.(VEP00L18A)
					<R>(NLA)
		VEP03478A	CCD C.B.A.	1	PARTS LIST IS
					INCLUDED IN VIDEO (2)
					C.B.A.(VEP03456A) <R>
					(NLA)
		VEP00L26A	VIDEO (2) SUB (1) C.B.A.	1	PARTS LIST IS
					INCLUDED IN VIDEO (2)
					C.B.A.(VEP03456A) <R>
					(NLA)
		VEP00L18A	VIDEO (2) SUB (2) C.B.A.	1	PARTS LIST IS

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
					INCLUDED IN VIDEO(2)
					C.B.A.(VEP03456A)<R>
					(NLA)
		VEP05107A	HEAD AMP C.B.A.	1	<R>(NLA)
		VEP06421A	FRONT C.B.A.	1	<R>(NLA)
		VEP00B67A	FE HEAD C.B.A.	1	<R>(NLA)
		VEK3338	REAR FRAME (R) UNIT	1	<R>(NLA)
		VXA2554	A/C HEAD UNIT	1	<R>(NLA)
		VXA2550	SOLENOID C.B. UNIT	1	<R>(NLA)
	■	VEP01290A	A.V.R. & REEL SERVO C.B.A.		
			CAPACITORS		
C1001		ECUX1H820KCN	CHIP 50V 82P	1	
C1002		ECUX1H561KBN	CHIP 50V 560P	1	
C1003		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C1004		ECEA1CK101	E.CAPACITOR 16V 100U	1	
C1005		ECUX1H473ZFN	CHIP 50V 0.047U	1	
C1006		ECUX1H103KBN	CHIP 50V 0.01U	1	
C1007		ECEA1CK101	E.CAPACITOR 16V 100U	1	
C1008		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C1009		ECUX1H561KBN	CHIP 50V 560P	1	
C1010		ECEA1AK221Z	E.CAPACITOR 10V 220U	1	
C1011		ECQV1H104JZ	P.CAPACITOR 50V 0.1U	1	
C1012-15		ECEA1CK101	E.CAPACITOR 16V 100U	4	
C1017		ECEA1AK221Z	E.CAPACITOR 10V 220U	1	
C1018		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C1019		ECEA0JKS330I	E.CAPACITOR 6.3V 33U	1	
C1020		ECEA1CK101	E.CAPACITOR 16V 100U	1	
C1021-23		ECEA1HKS010	E.CAPACITOR 50V 1U	3	
C2201,02		ECUX1H220KCN	CHIP 50V 22P	2	
C2203		ECEA0JKS220	E.CAPACITOR 6.3V .22U	1	
C2205,06		ECUX1E104ZFN	CHIP 25V 0.1U	2	
C2501		ECEA0JKN470	E.CAPACITOR 6.3V 47U	1	
C2502		ECEA1HKNR33	E.CAPACITOR 50V 0.33U	1	
C2503		ECEA0JKN470	E.CAPACITOR 6.3V 47U	1	
C2504		ECEA1HKNR22	E.CAPACITOR 50V 0.22U	1	
C2505		ECEA1EKS4R7I	E.CAPACITOR 25V 4.7U	1	
C2506		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C2507		ECUX1H101KCN	CHIP 50V 100P	1	
C2508		ECUX1H472KBN	CHIP 50V 4700P	1	
C2509		ECQB1H273JH	P.CAPACITOR 50V 0.027U	1	
C2510,11		ECEA1CKS100	E.CAPACITOR 16V 10U	2	
C2512,13		ECEA1HKS010	E.CAPACITOR 50V 1U	2	
C2514-16		ECUX1H473ZFN	CHIP 50V 0.047U	3	
C2517-19		ECEA1EKS4R7I	E.CAPACITOR 25V 4.7U	3	
C2520,21		ECEA1HKS010	E.CAPACITOR 50V 1U	2	
C2522-24		ECUX1H473ZFN	CHIP 50V 0.047U	3	
C2525-27		ECEA1EKS4R7I	E.CAPACITOR 25V 4.7U	3	
C2528		ECEA1EKN2R2	E.CAPACITOR 25V 2.2U	1	
C2529		ECEA1HKN010	E.CAPACITOR 50V 1U	1	
C2530		ECEA1AKS220I	E.CAPACITOR 10V 22U	1	
D1001,02		MA151WK	DIODE	2	<R>
D1003		ERA81004	DIODE	1	<R>
D2501,02		MA151A	DIODE	2	<R>
D2503		MA151WA	DIODE	1	<R>
FS2501,02		VJS1413	CONNECTOR(FEMALE)	2	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
IC1001		BA6149LS	IC	1	<R>
IC1002		UN101	IC	1	<R>
IC2201		63B05U0A01F	IC	1	<R>
IC2202		MN4053BS	IC	1	<R>
IC2203		MN4013BS	IC	1	<R>
IC2501		AN3620SA	IC	1	<R>
IC2502		AN3830KA	IC	1	<R>
IC2503		AN3830K	IC	1	<R>
IC2504		AN6912S	IC	1	<R>
IC2505		MN4538BS	IC	1	<R>
IC2506		MN4001BS	IC	1	<R>
L1001		VLQ0128	COIL 47UH	1	
L1002		VLQ0129	COIL 300UH	1	
L1004-07		VLQ0129	COIL 300UH	4	
L1008		VLQ0128	COIL 47UH	1	
P1001		VJP1244T	CONNECTOR(MALE) 4P	1	
P1002		VJP1248T	CONNECTOR(MALE) 8P	1	
P2201		VJP1601T	CONNECTOR(MALE) 8P	1	
P2501		VJP1612T	CONNECTOR(MALE)	1	
P2502		VJP1243R	CONNECTOR (MALE) 3P	1	
PR1001		VSF0015A08	IC PROTECTOR	1	<R><!>
Q1001		2SD992	TRANSISTOR	1	(K,L,M)<R>
Q1002		2SA779KC	TRANSISTOR	1	<R>
Q2201		2SD1328	TRANSISTOR CHIP	1	<R>
Q2202		2SD1328	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q2502		2SD602	TRANSISTOR	1	(R,S)<R>
Q2503		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
QR1001		UN2212	TRANSISTOR-RESISTOR	1	<R>
QR2201		UN2214	TRANSISTOR-RESISTOR	1	<R>
QR2501		UN2113	TRANSISTOR-RESISTOR	1	<R>
QR2502,03		UN2213	TRANSISTOR-RESISTOR	2	<R>
QR2504,05		UN2215	TRANSISTOR-RESISTOR	2	<R>
QR2506		UN2113	TRANSISTOR-RESISTOR	1	<R>
QR2507		UN1213	TRANSISTOR-RESISTOR	1	<R>
			RESISTORS		
R1001		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R1002		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R1003,04		ERJ6GEYJ222	CHIP 1/16W 2.2K	2	
R1005		ERJ6GEYJ154	CHIP 1/16W 150K	1	
R1006		ERDS2TJ122	C.RESISTOR 1/4W 1.2K	1	
R1007		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R1008-10		ERDS2TJ122	C.RESISTOR 1/4W 1.2K	3	
R1011		ERDS2TJ821	C.RESISTOR 1/4W 820	1	
R1012		ERDS2TJ122	C.RESISTOR 1/4W 1.2K	1	
R1013		ERJ6GEYJ154	CHIP 1/16W 150K	1	
R1014		ERJ6GEYJ153	CHIP 1/16W 15K	1	
R1015		EVN32CA00B14	V.RESISTOR 10K	1	
R1016		ERJ6GEYJ153	CHIP 1/16W 15K	1	
R1019		ERDS2TJ221	C.RESISTOR 1/4W 220	1	
R1020		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R1021,22		ERJ6GEYJ154	CHIP 1/16W 150K	2	
R1023		ERDS2TJ103	C.RESISTOR 1/4W 10K	1	
R2203		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R2204		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R2205		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R2206		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R2207,08		ERJ6GEYJ104	CHIP 1/16W 100K	2	
R2209-36		ERJ6GEYJ473	CHIP 1/16W 47K	28	
R2237		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R2238		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R2239		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R2240		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R2241		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R2501		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R2502		ERJ6GEYJ153	CHIP 1/16W 15K	1	
R2503		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R2504		ERJ6GEYJ123	CHIP 1/16W 12K	1	
R2505		ERJ6GEYJ105	CHIP 1/16W 1M	1	
R2506		ERJ6GEYJ683	CHIP 1/16W 68K	1	
R2507		ERJ6GEYJ221	CHIP 1/16W 220	1	
R2508		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R2509		ERJ6GEYJ682	CHIP 1/16W 6.8K	1	
R2510		ERJ6GEYJ334	CHIP 1/16W 330K	1	
R2511		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R2512		ERJ6GEYJ561	CHIP 1/16W 560	1	
R2514		ERJ6GEYJ182	CHIP 1/16W 1.8K	1	
R2515		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R2516		ERDS2TJ1R0	C.RESISTOR 1/4W 1.0	1	
R2517		ERDS2TJ120	C.RESISTOR 1/4W 12	1	
R2518		ERDS2TJR56	C.RESISTOR 1/4W 0.56	1	
R2519		ERDS2TJ120	C.RESISTOR 1/4W 12	1	
R2520		ERJ6GEYJ333	CHIP 1/16W 33K	1	
R2521		ERDS2TJ221	C.RESISTOR 1/4W 220	1	
R2522		ERDS2TJ820	C.RESISTOR 1/4W 82	1	
R2523,24		ERJ6GEYJ332	CHIP 1/16W 3.3K	2	
R2525		ERDS2TJ101	C.RESISTOR 1/4W 100	1	
R2526		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R2527		ERJ6GEYJ183	CHIP 1/16W 180K	1	
R2528		ERJ6GEYJ153	CHIP 1/16W 15K	1	
R2529,30		ERJ6GEYJ103	CHIP 1/16W 10K	2	
R2531,32		ERJ6GEYJ821	CHIP 1/16W 820	2	
R2533		ERJ6GEYJ221	CHIP 1/16W 220	1	
R2534		ERJ6GEYJ182	CHIP 1/16W 1.8K	1	
R2535		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R2536		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R2537		ERJ6GEYJ181	CHIP 1/16W 180	1	
R2538		ERDS2TJ103	C.RESISTOR 1/4W 10K	1	
X1001		VSX0136	CRYSTAL OSCILLATOR	1	
X2201		VSX0180	CRYSTAL OSCILLATOR	1	
	■	VEP04203B	MAIN C.B.A.		INCLUDING THE
					CYLINDER SERVO
					C.B.A.(VEP00K41A)
					AUDIO BIAS C.B.A.
					(VEP00K42A)
					AUDIO LEVEL SELECT
					C.B.A.(VEP00L38A)
					JACK UNIT(VEK3340)
			CAPACITORS		
C2001		ECEA1HKN0R1	E.CAPACITOR 50V 0.1U	1	
C2002		ECEA1CKN100	E.CAPACITOR 16V 10U	1	
C2003		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C2004		ECUX1H103KBN	CHIP 50V 0.01U	1	
C2005		ECUX1H472KBN	CHIP 50V 4700P	1	
C2006		ECEA1HKN010	E.CAPACITOR 50V 1U	1	
C2007		ECUX1H223ZFN	CHIP 50V 0.022U	1	
C2008		ECEA0GKS470I	E.CAPACITOR 4V 47U	1	
C2009		ECEA0GKS101I	E.CAPACITOR 4V 100U	1	
C2010		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C2011		ECUX1H473ZFN	CHIP 50V 0.047U	1	
C2012		ECQB1H223JH	P.CAPACITOR 50V 0.022U	1	
C2013		ECEA1EKS4R7I	E.CAPACITOR 25V 4.7U	1	
C2014		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C2015,16		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	2	
C2017		ECQV1H473JZ	P.CAPACITOR 50V 0.047U	1	
C2018		ECQB1H103JH	P.CAPACITOR 50V 0.01U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C2019,20		ECEA0JKS220	E.CAPACITOR 6.3V 22U	2	
C2021		ECQV1H473JZ	P.CAPACITOR 50V 0.047U	1	
C2022		ECQB1H562JH	P.CAPACITOR 50V 5600P	1	
C2023		ECUX1H223ZFN	CHIP 50V 0.022U	1	
C2024		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C2025		ECSF1CE274	TANTALUM 16V 0.27U	1	
C2028		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C2029		ECEA1VKN2R2	E.CAPACITOR 35V 2.2U	1	
C2030		ECUX1H332KBN	CHIP 50V 3300P	1	
C2031		ECQV1H473JZ	P.CAPACITOR 50V 0.047U	1	
C2032		ECUX1H562KBN	CHIP 50V 5600P	1	
C2033		ECUX1H102KBN	CHIP 50V 1000P	1	
C2034		ECQB1H332JH	P.CAPACITOR 50V 3300P	1	
C2035		ECQB1H682JH	P.CAPACITOR 50V 6800P	1	
C2036		ECQB1H103JH	P.CAPACITOR 50V 0.01U	1	
C2037		ECEA1HKSR33I	E.CAPACITOR 50V 0.33U	1	
C2038		ECUX1H103KBN	CHIP 50V 0.01U	1	
C2039		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C2040		ECUX1E333ZFN	CHIP 25V 0.033U	1	
C2041		ECEA0GKS470I	E.CAPACITOR 4V 47U	1	
C2042		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C2043		ECUX1E333ZFN	CHIP 25V 0.033U	1	
C2044,45		ECEA1HKS010	E.CAPACITOR 50V 1U	2	
C2046		ECQV1H224JZ	P.CAPACITOR 50V 0.22U	1	
C2047		ECQV1H104JZ	P.CAPACITOR 50V 0.1U	1	
C2048		ECUX1H473ZFN	CHIP 50V 0.047U	1	
C2049		ECQB1H123JH	P.CAPACITOR 50V 0.012U	1	
C2050-52		ECUX1H103KBN	CHIP 50V 0.01U	3	
C2053		ECEA1EKS3R3I	E.CAPACITOR 25V 3.3U	1	
C2054		ECUX1H682KBN	CHIP 50V 6800P	1	
C2055		ECEA1HKSR22I	E.CAPACITOR 50V 0.22U	1	
C2056		ECEA1AKS330I	E.CAPACITOR 10V 33U	1	
C2057		ECUX1H103KBN	CHIP 50V 0.01U	1	
C2058-60		ECEA1VKN2R2	E.CAPACITOR 35V 2.2U	3	
C2061		ECQV1H104JZ	P.CAPACITOR 50V 0.1U	1	
C2062		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C2063		ECEA0GKS470I	E.CAPACITOR 4V 47U	1	
C2064-66		ECEA1VKN2R2	E.CAPACITOR 35V 2.2U	3	
C2067		ECEA1AU221	E.CAPACITOR 10V 220U	1	
C2070		ECEA0JKN220	E.CAPACITOR 6.3V 22U	1	
C2101		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C2102,03		ECUX1H220KCN	CHIP 50V 22P	2	
C2104		ECUX1H103KBN	CHIP 50V 0.01U	1	
C2105		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C2106		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C4001		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C4002		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C4003		ECQB1H123JH	P.CAPACITOR 50V 0.012U	1	
C4004		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C4005		ECEA1EKS4R7I	E.CAPACITOR 25V 4.7U	1	
C4006		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C4007		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C4008		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C4009		ECSF1CE105	TANTALUM 16V 1U	1	
C4010		ECEA1AK101	E.CAPACITOR 10V 100U	1	
C4011		ECSF1CE106	TANTALUM 16V 22U	1	
C4012		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C4013		ECUX1H391KBN	CHIP 50V 390P	1	
C4014		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C4015		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C4016		ECQB1H123JH	P.CAPACITOR 50V 0.012U	1	
C4017		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C4018		ECEA1EKS4R7I	E.CAPACITOR 25V 4.7U	1	
C4019		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C4020		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C4021		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C4022		ECEA1AK101	E.CAPACITOR 10V 100U	1	
C4023		ECSF1CE106	TANTALUM 16V 22U	1	
C4024		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C4025		ECUX1H391KBN	CHIP 50V 390P	1	
C4028		ECQB1H272JH	P.CAPACITOR 50V 2700P	1	
C4029		ECEA1AK221Z	E.CAPACITOR 10V 220U	1	
C4030		ECSF1CE105	TANTALUM 16V 1U	1	
C4031,33		ECQV1H683JZ	P.CAPACITOR 50V 0.068U	2	
C4034		ECEA1CKS100	E.CAPACITOR 16V 10U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C4035,36		ECUX1H680KCN	CHIP 50V 68P	2	
C4037,38		ECUX1H682KBN	CHIP 50V 6800P	2	
C4039		ECQM4152JZ	P.CAPACITOR 200V 1500P	1	
C4040		ECQV1H473JZ	P.CAPACITOR 50V 0.047U	1	
C4042,43		ECKD2H151KB	C.CAPACITOR 500V 150P	2	
C4044-46		ECEA1CKS100	E.CAPACITOR 16V 10U	3	
C4047		ECUX1H102KBN	CHIP 50V 1000P	1	
C4048		ECEA1AKS330I	E.CAPACITOR 10V 33U	1	
C4049-51		ECEA1CKS100	E.CAPACITOR 16V 10U	3	
C4052		ECEA1AKS330I	E.CAPACITOR 10V 33U	1	
C4053		ECUX1H102KBN	CHIP 50V 1000P	1	
C4054-57		ECEA1CKS100	E.CAPACITOR 16V 10U	4	
C4058,59		ECEA1AKS470I	E.CAPACITOR 10V 47U	2	
C4060-62		ECEA1CKS100	E.CAPACITOR 16V 10U	3	
C4063		ECEA1AKS470I	E.CAPACITOR 10V 47U	1	
C4064,65		ECQV1H104JZ	P.CAPACITOR 50V 0.1U	2	
C4083,84		ECEA1AKS470I	E.CAPACITOR 10V 47U	2	
C4100		ECEA1AK101	E.CAPACITOR 10V 100U	1	
C4103		ECEA1AKS330I	E.CAPACITOR 10V 33U	1	
C4104		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C4105,08		ECEA1AKN330	E.CAPACITOR 10V 33U	2	
C4401		ECEA1CK101	E.CAPACITOR 16V 100U	1	
C4402		ECEA1AK221Z	E.CAPACITOR 10V 220U	1	
C4403,04		ECQB1H472JH	P.CAPACITOR 50V 4700P	2	
C4405,06		ECEA1CKS100	E.CAPACITOR 16V 10U	2	
C4407		ECEA1CKS470I	E.CAPACITOR 16V 47U	1	
C4408		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C4501		ECEA1CK101	E.CAPACITOR 16V 100U	1	
C4502		ECEA0JK221	E.CAPACITOR 6.3V 220U	1	
C4504		ECQB1H153JH	P.CAPACITOR 50V 0.015U	1	
C4505		ECEA1CKS470I	E.CAPACITOR 16V 47U	1	
C4506		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C4507		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C4508		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C4509		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C4510		ECEA1AK221Z	E.CAPACITOR 10V 220U	1	
C4511		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C4512		ECQB1H103JH	P.CAPACITOR 50V 0.01U	1	
C4513		ECEA25Z3R3	E.CAPACITOR 25V 3.3U	1	
C4514,15		ECEA1CKS100	E.CAPACITOR 16V 10U	2	
C4516		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C4517		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C4518		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C4519		ECEA1EKS3R3I	E.CAPACITOR 25V 3.3U	1	
C4520		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C4521		ECUX1H103KBN	CHIP 50V 0.01U	1	
C4522		ECUX1H220KCN	CHIP 50V 22P	1	
C4523		ECUX1H680KCN	CHIP 50V 68P	1	
C4524		ECEA25Z3R3	E.CAPACITOR 25V 3.3U	1	
C4525		ECQV1H473JZ	P.CAPACITOR 50V 0.047U	1	
C4526		ECEA1EFS220	E.CAPACITOR 25V 22U	1	
C4527		ECEA1AFS101	E.CAPACITOR 10V 100U	1	
C4528,29		ECEA0JKS470	E.CAPACITOR 6.3V 47U	2	
C4530		ECQV1H393JZ	P.CAPACITOR 50V 0.039U	1	
C4531,32		ECEA0JKS220	E.CAPACITOR 6.3V 22U	2	
C4533		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C4534		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C4535		ECUX1H561KBN	CHIP 50V 560P	1	
C4536		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C4537		ECUX1H331KBN	CHIP 50V 330P	1	
C4538,39		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	2	
C4541		ECQB1H153JH	P.CAPACITOR 50V 0.015U	1	
C4542		ECEA1CKS470I	E.CAPACITOR 16V 47U	1	
C4543		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C4544		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C4545		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C4546		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C4547		ECEA1AK221Z	E.CAPACITOR 10V 220U	1	
C4548		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C4549		ECEA25Z3R3	E.CAPACITOR 25V 3.3U	1	
C4550		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C4553		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C4554		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C4555		ECEA1EKS3R3I	E.CAPACITOR 25V 3.3U	1	
C4556		ECEA1CKS100	E.CAPACITOR 16V 10U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C4558		ECUX1H470KCN	CHIP 50V 47P	1	
C4559		ECEA25Z3R3	E.CAPACITOR 25V 3.3U	1	
C4560		ECQV1H473JZ	P.CAPACITOR 50V 0.047U	1	
C4561		ECEA1EFS220	E.CAPACITOR 25V 22U	1	
C4562		ECEA1AFS101	E.CAPACITOR 10V 100U	1	
C4563,64		ECEA0JKS470	E.CAPACITOR 6.3V 47U	2	
C4565		ECQV1H393JZ	P.CAPACITOR 50V 0.039U	1	
C4566,67		ECEA0JKS220	E.CAPACITOR 6.3V 22U	2	
C4568		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C4569		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C4570		ECUX1H561KBN	CHIP 50V 560P	1	
C4571		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C4572		ECUX1H331KBN	CHIP 50V 330P	1	
C4573,74		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	2	
C4575,76		ECQB1H562JH	P.CAPACITOR 50V 5600P	2	
C4577		ECQB1H103JH	P.CAPACITOR 50V 0.01U	1	
C4580,81		ECUX1H102KBN	CHIP 50V 1000P	2	
C4582,83		ECCF1H221JC	C.CAPACITOR 50V 220P	2	
C4585-90		ECUX1H103KBN	CHIP 50V 0.01U	6	
C4591		ECEA1CKS330I	E.CAPACITOR 16V 33U	1	
C4592		ECUX1H103KBN	CHIP 50V 0.01U	1	
C4593		ECSF1VE104	TANTALUM 35V 0.1U	1	
C4594		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C4595		ECUX1H103KBN	CHIP 50V 0.01U	1	
C4596		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C4597,98		ECUX1H103KBN	CHIP 50V 0.01U	2	
C4599		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C4600		ECUX1H103KBN	CHIP 50V 0.01U	1	
C4601		ECEA0JKS330I	E.CAPACITOR 6.3V 33U	1	
C4602		ECUX1H103KBN	CHIP 50V 0.01U	1	
C4603,04		ECUX1H560KCN	CHIP 50V 56P	2	
C4605		ECEA0JKS330I	E.CAPACITOR 6.3V 33U	1	
C4606-08		ECUX1H103KBN	CHIP 50V 0.01U	3	
C4609,10		ECEA1CKS100	E.CAPACITOR 16V 10U	2	
C4611		ECEA0JKS330I	E.CAPACITOR 6.3V 33U	1	
C4612,13		ECUX1H103KBN	CHIP 50V 0.01U	2	
C4614		ECUX1H220KCN	CHIP 50V 22P	1	
C4615		ECQV1H154JZ	P.CAPACITOR 50V 0.15U	1	
C4616		ECEA0JU471	E.CAPACITOR 6.3V 470U	1	
C4617		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C4618		ECUX1H103KBN	CHIP 50V 0.01U	1	
C6001		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C6002		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C6003		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C6004		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C6005		ECUX1H103KBN	CHIP 50V 0.01U	1	
C6006		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C6008		ECUX1H103KBN	CHIP 50V 0.01U	1	
C6009		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C6010		ECUX1H103KBN	CHIP 50V 0.01U	1	
C6011		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C6012		ECEA1CKS330I	E.CAPACITOR 16V 33U	1	
C6013		ECUX1H103KBN	CHIP 50V 0.01U	1	
C6014		ECEA1CSS102	E.CAPACITOR 16V 1000U	1	
C6015,16		ECUX1H103KBN	CHIP 50V 0.01U	2	
C6017		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C6018		ECEA0GKS470I	E.CAPACITOR 4V 47U	1	
C6019		ECEA1EKS100I	E.CAPACITOR 25V 10U	1	
C6020,21		ECEA1HKS0R1	E.CAPACITOR 50V 0.1U	2	
C6022		ECUX1H330KCN	CHIP 50V 33P	1	
C6023		ECUX1H100DCN	CHIP 50V 10P	1	
C6024,25		ECUX1H103KBN	CHIP 50V 0.01U	2	
C6026		ECQV1H104JZ	P.CAPACITOR 50V 0.1U	1	
C6027		ECEA1CU471	E.CAPACITOR 16V 470U	1	
C6601		ECEA1AKS330I	E.CAPACITOR 10V 33U	1	
C6602		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C6603		ECEA1CKN100	E.CAPACITOR 16V 10U	1	
C6604		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C6605		ECEA1CKN100	E.CAPACITOR 16V 10U	1	
C6606		ECEA1AKS470I	E.CAPACITOR 10V 47U	1	
C6607		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C6608		ECEA1EKS4R7I	E.CAPACITOR 25V 4.7U	1	
C6609		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C6610		ECEA1EKS4R7I	E.CAPACITOR 25V 4.7U	1	
C6611		ECEA1CK101	E.CAPACITOR 16V 100U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C6612		ECEA1CKN100	E.CAPACITOR 16V 10U	1	
C6613		ECEA1AKS470I	E.CAPACITOR 10V 47U	1	
C6614,15		ECEA1HKS010	E.CAPACITOR 50V 1U	2	
C6616		ECEA1EKS4R7I	E.CAPACITOR 25V 4.7U	1	
C6617		ECEA1CKN100	E.CAPACITOR 16V 10U	1	
C6618,19		ECEA1HKS010	E.CAPACITOR 50V 1U	2	
C6620		ECEA1EKS4R7I	E.CAPACITOR 25V 4.7U	1	
C6621,22		ECUX1E104ZFN	CHIP 25V 0.1U	2	
C6625		ECUX1H103KBN	CHIP 50V 0.01U	1	
C6626		ECEA1CKS330I	E.CAPACITOR 16V 33U	1	
C6627		ECEA0JU102	E.CAPACITOR 6.3V 1000U	1	
C6701		ECUX1H103KBN	CHIP 50V 0.01U	1	
C6702		ECEA1CKS330I	E.CAPACITOR 16V 33U	1	
C6703		ECUX1H103KBN	CHIP 50V 0.01U	1	
C6704		ECEA1CKS330I	E.CAPACITOR 16V 33U	1	
C6705		ECUX1H103KBN	CHIP 50V 0.01U	1	
C6706		ECUX1H102KBN	CHIP 50V 1000P	1	
C6707		ECUX1H470KCN	CHIP 50V 47P	1	
C6708-10		ECUX1H101KCN	CHIP 50V 100P	3	
C6711		ECUX1H103KBN	CHIP 50V 0.01U	1	
C6712,13		ECUX1H102KBN	CHIP 50V 1000P	2	
C6714		ECUX1H103KBN	CHIP 50V 0.01P	1	
C6715		ECEA1EKS4R7I	E.CAPACITOR 25V 4.7U	1	
C6716		ECUX1H102KBN	CHIP 50V 1000P	1	
C6717		ECUX1H103KBN	CHIP 50V 0.01U	1	
C6718		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C6719-23		ECUX1H103KBN	CHIP 50V 0.01U	5	
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D2007,08		MA151A	DIODE	2	<R>
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D4010		MA151A	DIODE	1	<R>
D4011		MA151K	DIODE	1	<R>
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D4503		MA151WK	DIODE	1	<R>
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D6701		MA151A	DIODE	1	<R>
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F6002		XBA1C12NU100	FUSE	1	<R><!>
F6003		XBA1C20NU100	FUSE	1	<R><!>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
FL4401,02		VLF0402	FILTER	2	
FL4501		VLF0334	FILTER	1	
FL4502		VLF0335	FILTER	1	
FS2001		VJS1900	CONNECTOR (FEMALE)	1	
FS2002		VJS1412	CONNECTOR(FEMALE)	1	
IC2001		VCR0094	IC	1	<R>
IC2002		AN3610NK	IC	1	<R>
IC2003		UPC1515CA	IC	1	<R>
IC2004		AN3710S	IC	1	<R>
IC2005		AN3810K	IC	1	<R>
IC2006		AN3821K	IC	1	<R>
IC2101		MN51005VZQ	IC	1	<R>
IC2102		UPC339G	IC	1	<R>
IC4001,02		VEFA004	FIC	2	<R>
IC4006		TA7325P	IC	1	<R>
IC4007		AN6558	IC	1	<R>
IC4101		UPC393C	IC	1	<R>
IC4401		NR8830	IC	1	<R>
IC4402		MN4066BS	IC	1	<R>
IC4501		VEFA006	FIC	1	<R>
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IC4504		VEFA006	FIC	1	<R>
IC4506		VCR0112	IC	1	<R>
IC4507		UPC1531HA	IC	1	<R>
IC4508		AN3312	IC	1	<R>
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IC4510		BA6323L	IC	1	<R>
IC6001		MN1534VGA	IC	1	<R>
IC6002		BA6209U3	IC	1	<R>
IC6003		VCR0091	IC	1	<R>
IC6005		AN78L05	IC	1	<R>
IC6006		MN6283	IC	1	<R>
IC6007		UPD7503G186	IC	1	<R>
IC6601		VCR0186	IC	1	<R>
IC6602		BA7001	IC	1	<R>
IC6603		MN4011BS	IC	1	<R>
IC6604		UPC393G	IC	1	<R>
IC6605		UPD7554G529	IC	1	<R>
IC6606		UPC393G	IC	1	<R>
IC6701		MN4040BS	IC	1	<R>
IC6702-04		MN4013BS	IC	3	<R>
IC6705		MN4538BS	IC	1	<R>
IC6706,07		MN4081BS	IC	2	<R>
IC6708		MN4011BS	IC	1	<R>
IC6709		MN4069UBS	IC	1	<R>
J4701		VJJ0134	HEADPHONE JACK	1	
L2001		VLQEL05F820K	COIL 82UH	1	
L4001		VLQEL05F820K	COIL 82UH	1	
L4002		ELTMR153KB	TRANSFORMER	1	
L4003		VLQ0212	COIL 47UH	1	
L4004		ELTMR153KB	TRANSFORMER	1	
L4005		VLQ0207K1R0	COIL 1UH	1	
L4006		VTQ0016	COIL	1	
L4010		VLQEL05F221K	COIL 220UH	1	
L4501		VLQEL05F121K	COIL 120UH	1	
L4502		VLQEL05F101K	COIL 100UH	1	
L4503,04		VLQ0172	COIL	2	
L4506		VLQEL05F101K	COIL 100UH	1	
L4507,08		VLQEL05F821K	COIL 820UH	2	
L4509		VLQEL05F330K	COIL 33UH	1	
L4510		VLQEL05F821K	COIL 820UH	1	
L4511,12		VLP0017	COIL	2	
L4513,14		VLQ0123	COIL	2	
L6701,02		VLQ0207K221	COIL 220UH	2	
L6703		VLQ0207K8R2	COIL 8.2UH	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
P2001		VJP1242T	CONNECTOR(MALE) 2P	1	
P2002		VJP1596T	CONNECTOR(MALE) 3P	1	
P2003		VJS1409	CONNECTOR(FEMALE)	1	
P2004		VJP1231T	CONNECTOR(MALE) 4P	1	
P2005		VJP1235T	CONNECTOR(MALE) 8P	1	
P2006		VJP1601T	CONNECTOR(MALE) 8P	1	
P4001,02		VJP1231R	CONNECTOR(MALE) 4P	2	
P4003		VJP1605T	CONNECTOR(MALE) 12P	1	
P4004		VJP1595T	CONNECTOR(MALE) 2P	1	
P4402,01		VJP1597T	CONNECTOR(MALE) 4P	2	
P4502		VJP1231T	CONNECTOR(MALE) 4P	1	
P4703		VJP1616T	CONNECTOR(MALE)	1	
P6001		VJP1601T	CONNECTOR(MALE) 8P	1	
P6002		VJP1595T	CONNECTOR(MALE) 2P	1	
P6003		VJP1231R	CONNECTOR(MALE) 4P	1	
P6004		VJP1229	CONNECTOR(MALE) 2P	1	
P6005		VJP1229T	CONNECTOR(MALE) 2P	1	
P6006		VJP1145	CONNECTOR(MALE)	1	
P6007		VJP1231T	CONNECTOR(MALE) 4P	1	
P6008		VJP1231B	CONNECTOR(MALE) 4P	1	
P6009		VJP1229	CONNECTOR(MALE) 2P	1	
P6010		VJP1603T	CONNECTOR(MALE) 10P	1	
P6011,12		VJP1229	CONNECTOR(MALE) 2P	2	
P6013		VJP1230T	CONNECTOR(MALE) 3P	1	
P6014		VJP1231T	CONNECTOR(MALE) 4P	1	
P6602		VJP1229T	CONNECTOR(MALE) 2P	1	
P6603		VJP1596T	CONNECTOR(MALE) 3P	1	
P6604		VJP1239T	CONNECTOR(MALE) 12P	1	
P6606		VJP1242T	CONNECTOR(MALE) 2P	1	
P6607		VJS1409	CONNECTOR(FEMALE)	1	
P6608		VJP1605T	CONNECTOR(MALE) 12P	1	
P6609		VJP1595T	CONNECTOR(MALE) 2P	1	
P6610		VJP1242R	CONNECTOR(MALE) 2P	1	
P6701		VJP1230T	CONNECTOR(MALE) 3P	1	
Q2001-03		2SB709	TRANSISTOR CHIP	3	(Q,R,S)<R>
Q2004		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q2101,02		2SD601	TRANSISTOR CHIP	2	(Q,R,S)<R>
Q4001		2SD973A	TRANSISTOR	1	(R)<R>
Q4002		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q4008		2SD1328	TRANSISTOR CHIP	1	(R,S,T,X)<R>
Q4009		2SD639	TRANSISTOR	1	(Q,R,S)<R>
Q4010,11		2SD1149	TRANSISTOR	2	(R,S)<R>
Q4012		2SB710A	TRANSISTOR	1	(Q,R)<R>
Q4013,14		2SD1149	TRANSISTOR	2	(R,S)<R>
Q4015		2SB710A	TRANSISTOR	1	(Q,R)<R>
Q4401		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q4402,03		2SD1328	TRANSISTOR CHIP	2	(R,S)<R>
Q4404		2SD1328	TRANSISTOR CHIP	1	(R,S,T,X)<R>
Q4501		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q4502		2SD602	TRANSISTOR	1	(R,S)<R>
Q4505,08		2SD1328	TRANSISTOR CHIP	2	(R,S)<R>
Q4513		2SC2404	TRANSISTOR CHIP	1	(C,D)<R>
Q4514		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q4515		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q4516		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q4517		2SD602	TRANSISTOR	1	(R,S)<R>
Q4518,19		2SD1328	TRANSISTOR CHIP	2	(R,S,T,X)<R>
Q4521		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q4522		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q6001		2SB643	TRANSISTOR	1	(Q,R,S)<R>
Q6002		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q6005		2SB774	TRANSISTOR	1	(Q,R,S)<R>
Q6006		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q6007		2SB819	TRANSISTOR	1	(Q,R,S)<R>
Q6008		2SD973	TRANSISTOR	1	(Q,R,S)<R>
Q6009		2SB933	TRANSISTOR	1	(P,Q)<R>
Q6010,11		2SD601	TRANSISTOR CHIP	2	(Q,R,S)<R>
Q6012		2SD638	TRANSISTOR	1	(Q,R,S)<R>
Q6013-15		2SD601	TRANSISTOR CHIP	3	(Q,R,S)<R>
Q6016		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
Q6601		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q6602,03		2SB709	TRANSISTOR CHIP	2	(Q,R,S)<R>
Q6604		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q6605		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q6606		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q6610,12		2SB709	TRANSISTOR CHIP	2	(Q,R,S)<R>
Q6701		2SB644	TRANSISTOR	1	(Q,R,S)<R>
Q6702		2SC2188	TRANSISTOR	1	<R>
Q6703,04		2SD601	TRANSISTOR CHIP	2	(Q,R,S)<R>
Q6705		2SD1328	TRANSISTOR CHIP	1	(R,S,T,X)<R>
Q6706		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q6707		2SB710	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q6708		2SD602	TRANSISTOR	1	(R,S)<R>
Q6709-16		2SD601	TRANSISTOR CHIP	8	(Q,R,S)<R>
QR2001		UN2110	TRANSISTOR-RESISTOR	1	<R>
QR2002-09		UN2213	TRANSISTOR-RESISTOR	6	<R>
QR2101		UN2112	TRANSISTOR-RESISTOR	1	<R>
QR2102		UN2213	TRANSISTOR-RESISTOR	1	<R>
QR4001		UN2212	TRANSISTOR-RESISTOR	1	<R>
QR4002		UN2215	TRANSISTOR-RESISTOR	1	<R>
QR4003		UN2212	TRANSISTOR-RESISTOR	1	<R>
QR4004,06		UN2213	TRANSISTOR-RESISTOR	2	<R>
QR4007,08		UN2112	TRANSISTOR-RESISTOR	2	<R>
QR4009-12		UN2215	TRANSISTOR-RESISTOR	4	<R>
QR4013		UN2212	TRANSISTOR-RESISTOR	1	<R>
QR4014		UN2113	TRANSISTOR-RESISTOR	1	<R>
QR4015,16		UN2215	TRANSISTOR-RESISTOR	2	<R>
QR4101		UN2111	TRANSISTOR-RESISTOR	1	<R>
QR4102		UN2115	COMBINATION PARTS	1	<R>
QR4103		UN2116	TRANSISTOR-RESISTOR	1	<R>
QR4104		UN2212	TRANSISTOR-RESISTOR	1	<R>
QR4105		UN2215	TRANSISTOR-RESISTOR	1	<R>
QR4401-04		UN2213	TRANSISTOR-RESISTOR	4	<R>
QR4502,03		UN2213	TRANSISTOR-RESISTOR	2	<R>
QR4505		UN2112	TRANSISTOR-RESISTOR	1	<R>
QR4506		UN2212	TRANSISTOR-RESISTOR	1	<R>
QR6001		UN2212	TRANSISTOR-RESISTOR	1	<R>
QR6002,03		UN2112	TRANSISTOR-RESISTOR	2	<R>
QR6004		UN2213	TRANSISTOR-RESISTOR	1	<R>
QR6005,06		UN2212	TRANSISTOR-RESISTOR	2	<R>
QR6007		UN2213	TRANSISTOR-RESISTOR	1	<R>
QR6008		UN2215	TRANSISTOR-RESISTOR	1	<R>
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QR6011		UN2212	TRANSISTOR-RESISTOR	1	<R>
QR6601		UN2112	TRANSISTOR-RESISTOR	1	<R>
QR6602-06		UN2212	TRANSISTOR-RESISTOR	5	<R>
QR6607		UN221E	TRANSISTOR-RESISTOR	1	<R>
QR6608		UN2215	TRANSISTOR-RESISTOR	1	<R>
QR6610		UN2112	TRANSISTOR-RESISTOR	1	<R>
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QR6613		UN2111	TRANSISTOR-RESISTOR	1	<R>
QR6614		UN2113	TRANSISTOR-RESISTOR	1	<R>
QR6615		UN2213	TRANSISTOR-RESISTOR	1	<R>
QR6701		UN2213	TRANSISTOR-RESISTOR	1	<R>
QR6702-05		UN2215	TRANSISTOR-RESISTOR	4	<R>
			RESISTORS		
R2001		ERJ6GEYJ183	CHIP 1/16W 180K	1	
R2002		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R2003		ERJ6GEYJ821	CHIP 1/16W 820	1	
R2004		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R2006		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R2007		ERJ6GEYJ153	CHIP 1/16W 15K	1	
R2008		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R2009,10		ERDS2TJ560	C.RESISTOR 1/4W 56	2	
R2011		ERJ6GEYJ182	CHIP 1/16W 1.8K	1	
R2012		ERJ6GEYJ333	CHIP 1/16W 33K	1	
R2013		ERJ6GEYJ124	CHIP 1/16W 120K	1	
R2014		ERJ6GEYJ154	CHIP 1/16W 150K	1	
R2015		ERJ6GEYJ273	CHIP 1/16W 27K	1	
R2016		ERJ6GEYJ334	CHIP 1/16W 330K	1	
R2017		ERJ6GEYJ154	CHIP 1/16W 150K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R2018		ERJ6GEYJ123	CHIP 1/16W 12K	1	
R2019		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R2020		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R2022		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R2023,24		ERJ6GEYJ332	CHIP 1/16W 3.3K	2	
R2025,26		ERJ6GEYG223	CHIP 1/16W 22K	2	
R2027		ERJ6GEYJ273	CHIP 1/16W 27K	1	
R2028,29		ERJ6GEYJ103	CHIP 1/16W 10K	2	
R2030		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R2031		ERJ6GEYJ184	CHIP 1/16W 180K	1	
R2032,33		ERJ6GEYJ823	CHIP 1/16W 82K	2	
R2034		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R2035		ERJ6GEYJ154	CHIP 1/16W 150K	1	
R2036		ERJ6GEYJ334	CHIP 1/16W 330K	1	
R2037		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R2040		ERJ6GEYJ273	CHIP 1/16W 27K	1	
R2041		ERJ6GEYJ822	CHIP 1/16W 8.2K	1	
R2042		ERJ6GEYJ153	CHIP 1/16W 15K	1	
R2043		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R2044		ERJ6GEYJ274	CHIP 1/16W 270K	1	
R2045		ERJ6GEYJ154	CHIP 1/16W 150K	1	
R2046		ERJ6GEYJ823	CHIP 1/16W 82K	1	
R2047,49		ERJ6GEYJ103	CHIP 1/16W 10K	2	
R2050		ERJ6GEYJ334	CHIP 1/16W 330K	1	
R2051		ERJ6GEYJ271	CHIP 1/16W 270	1	
R2052		ERJ6GEYJ474	CHIP 1/16W 470K	1	
R2053		ERJ6GEYJ334	CHIP 1/16W 330K	1	
R2054		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R2055		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R2056		ERDS2TJ1R0	C.RESISTOR 1/4W 1.0	1	
R2057		ERJ6GEYJ333	CHIP 1/16W 33K	1	
R2058		ERJ6GEYJ183	CHIP 1/16W 180K	1	
R2059		ERJ6GEYJ124	CHIP 1/16W 120K	1	
R2060		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R2061-63		ERJ6GEYK6R8	CHIP 1/10W 6.8	3	
R2064		ERDS2TJR68	C.RESISTOR 1/4W 0.68	1	
R2065		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R2066		ERJ6GEYJ392	CHIP 1/16W 3.9K	1	
R2067,69		ERJ6GEYJ822	CHIP 1/16W 8.2K	2	
R2070-72		ERJ6GEYJ224	CHIP 1/16W 220K	3	
R2073		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R2074		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R2075		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R2076		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R2077		ERJ6GEYJ474	CHIP 1/16W 470K	1	
R2078		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R2080		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R2081		ERDS2TJ3R9	C.RESISTOR 1/4W 3.9	1	
R2101		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R2102		ERJ6GEYJ393	CHIP 1/16W 39K	1	
R2103		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R2104		ERJ6GEYJ333	CHIP 1/16W 33K	1	
R2105		ERJ6GEYJ123	CHIP 1/16W 12K	1	
R2106,07		ERJ6GEYJ222	CHIP 1/16W 2.2K	2	
R2108		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R2109		ERJ6GEYJ474	CHIP 1/16W 470K	1	
R2110,11		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R4001		ERJ6GEYJ123	CHIP 1/16W 12K	1	
R4002		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R4003		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R4004		ERJ6GEYJ123	CHIP 1/16W 12K	1	
R4005		ERJ6GEYJ105	CHIP 1/16W 1M	1	
R4006		ERJ6GEYJ333	CHIP 1/16W 33K	1	
R4007		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R4008		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R4009		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R4010		ERJ6GEYJ123	CHIP 1/16W 12K	1	
R4011		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R4012		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R4014		ERJ6GEYJ123	CHIP 1/16W 12K	1	
R4015		ERJ6GEYJ105	CHIP 1/16W 1M	1	
R4016		ERJ6GEYJ333	CHIP 1/16W 33K	1	
R4017		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R4018		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R4019		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R4020,21		ERJ6GEYJ104	CHIP 1/16W 100K	2	
R4022		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R4023,24		ERJ6GEYJ151	CHIP 1/16W 150	2	
R4025		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R4026,27		ERJ6GEYJ101	CHIP 1/16W 100	2	
R4028		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R4029,31		ERJ6GEYJ333	CHIP 1/16W 33K	2	
R4032		ERJ6GEYJ822	CHIP 1/16W 8.2K	1	
R4033		ERDS2TJ3R3	C.RESISTOR 1/4W 3.3	1	
R4034		ERJ6GEYJ271	CHIP 1/16W 270	1	
R4035		ERJ6GEYJ221	CHIP 1/16W 220	1	
R4036		ERJ6GEYJ271	CHIP 1/16W 270	1	
R4037		ERJ6GEYJ221	CHIP 1/16W 220	1	
R4038		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R4040,41		ERJ6GEYJ472	CHIP 1/16W 4.7K	2	
R4042		ERJ6GEYJ274	CHIP 1/16W 270K	1	
R4043		ERJ6GEYJ333	CHIP 1/16W 33K	1	
R4044		ERJ6GEYJ471	CHIP 1/16W 470	1	
R4045		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R4046		ERJ6GEYJ274	CHIP 1/16W 270K	1	
R4047		ERJ6GEYJ333	CHIP 1/16W 33K	1	
R4048		ERJ6GEYJ471	CHIP 1/16W 470	1	
R4049,50		ERJ6GEYJ473	CHIP 1/16W 47K	2	
R4051		ERJ6GEYJ154	CHIP 1/16W 150K	1	
R4052		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R4053		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R4054		ERJ6GEYJ154	CHIP 1/16W 150K	1	
R4055,56		ERJ6GEYJ103	CHIP 1/16W 10K	2	
R4061		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R4062		ERJ6GEYJ683	CHIP 1/16W 68K	1	
R4063		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R4064		ERJ6GEYJ683	CHIP 1/16W 68K	1	
R4065		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R4066		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R4067		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R4068		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R4069		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R4070		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R4079		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R4080		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R4081		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R4082,83		ERJ6GEYJ332	CHIP 1/16W 3.3K	2	
R4084		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R4085		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R4086		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R4087		ERJ6GEYJ561	CHIP 1/16W 560	1	
R4088,89		ERJ6GEYJ472	CHIP 1/16W 4.7K	2	
R4090		ERJ6GEYJ561	CHIP 1/16W 560	1	
R4091		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R4092,93		ERJ6GEYJ103	CHIP 1/16W 10K	2	
R4102		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R4103		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R4138		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R4142		ERJ6GEYJ332	CHIP 1/16W 3.3K	1	
R4143		ERJ6GEYJ152	CHIP 1/16W 1.5K	1	
R4144		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R4146,47		ERJ6GEYJ103	CHIP 1/16W 10K	2	
R4148		ERJ6GEYJ332	CHIP 1/16W 3.3K	1	
R4149		ERJ6GEYJ564	CHIP 1/16W 560K	1	
R4153		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R4154		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R4401		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R4402		ERJ6GEYJ392	CHIP 1/16W 3.9K	1	
R4403		ERJ6GEYJ391	CHIP 1/16W 390	1	
R4404		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R4405		ERJ6GEYJ392	CHIP 1/16W 3.9K	1	
R4406		ERJ6GEYJ391	CHIP 1/16W 390	1	
R4407		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R4408,09		ERJ6GEYJ222	CHIP 1/16W 2.2K	2	
R4410		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R4414		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R4415		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R4418,19		ERJ6GEYJ103	CHIP 1/16W 10K	2	
R4420,21		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R4422,23		ERJ6GEYJ103	CHIP 1/16W 10K	2	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R4501		ERJ6GEYJ152	CHIP 1/16W 1.5K	1	
R4502		ERJ6GEYJ332	CHIP 1/16W 3.3K	1	
R4506		ERJ6GEYG471	CHIP 1/10W 470	1	
R4507		ERJ6GEYG132	CHIP 1/10W 1.3K	1	
R4508		ERJ6GEYG242	CHIP 1/16W 2.4K	1	
R4509		ERJ6GEYJ123	CHIP 1/16W 12K	1	
R4510		ERJ6GEYG102	CHIP 1/16W 1K	1	
R4511		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R4514		ERJ6GEYJ821	CHIP 1/16W 820	1	
R4515		ERJ6GEYJ221	CHIP 1/16W 220	1	
R4516		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R4517		ERJ6GEYG472	CHIP 1/16W 4.7K	1	
R4518		ERJ6GEYG471	CHIP 1/10W 470	1	
R4519		ERJ6GEYJ101	CHIP 1/16W 100	1	
R4520		ERJ6GEYJ330	CHIP 1/16W 33	1	
R4521		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R4522		ERJ6GEYJ183	CHIP 1/16W 180K	1	
R4523		ERJ6GEYJ682	CHIP 1/16W 6.8K	1	
R4524		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R4526		ERJ6GEYG471	CHIP 1/10W 470	1	
R4527		ERJ6GEYG132	CHIP 1/10W 1.3K	1	
R4528		ERJ6GEYG242	CHIP 1/16W 2.4K	1	
R4529		ERJ6GEYJ123	CHIP 1/16W 12K	1	
R4530		ERJ6GEYG102	CHIP 1/16W 1K	1	
R4534		ERJ6GEYJ331	CHIP 1/16W 330	1	
R4535		ERJ6GEYJ681	CHIP 1/16W 680	1	
R4536		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R4537		ERJ6GEYJ101	CHIP 1/16W 100	1	
R4538		ERJ6GEYG472	CHIP 1/16W 4.7K	1	
R4539		ERJ6GEYG471	CHIP 1/10W 470	1	
R4540		ERJ6GEYJ330	CHIP 1/16W 33	1	
R4541		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R4542		ERJ6GEYJ183	CHIP 1/16W 180K	1	
R4543		ERJ6GEYJ682	CHIP 1/16W 6.8K	1	
R4544		ERJ6GEYJ332	CHIP 1/16W 3.3K	1	
R4552,53		ERJ6GEYJ562	CHIP 1/16W 5.6K	2	
R4554		ERJ6GEYJ474	CHIP 1/16W 470K	1	
R4556		ERJ6GEYJ221	CHIP 1/16W 220	1	
R4557		ERJ6GEYJ392	CHIP 1/16W 3.9K	1	
R4558		ERJ6GEYJ471	CHIP 1/16W 470	1	
R4559		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R4560		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R4561,62		ERJ6GEYJ392	CHIP 1/16W 3.9K	2	
R4563		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R4564,65		ERJ6GEYJ100	CHIP 1/16W 10	2	
R4566		ERJ6GEYJ152	CHIP 1/16W 1.5K	1	
R4567		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R4568,69		ERJ6GEYJ152	CHIP 1/16W 1.5K	2	
R4570,71		ERJ6GEYJ100	CHIP 1/16W 10	2	
R4573		ERJ6GEYJ101	CHIP 1/16W 100	1	
R4574		ERJ6GEYJ123	CHIP 1/16W 12K	1	
R4575,76		ERJ6GEYJ393	CHIP 1/16W 39K	2	
R4577		ERJ6GEYJ123	CHIP 1/16W 12K	1	
R4578		ERJ6GEYJ101	CHIP 1/16W 100	1	
R4579,80		ERJ6GEYJ561	CHIP 1/16W 560	2	
R4581		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R4582		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R4583		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R4584		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R4585		ERJ6GEYJ471	CHIP 1/16W 470	1	
R4586		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R4587,88		ERJ6GEYJ681	CHIP 1/16W 680	2	
R4589-93		ERJ6GEYJ222	CHIP 1/16W 2.2K	5	
R4594		ERJ6GEYJ224	CHIP 1/16W 220K	1	
R4595		ERJ6GEYJ152	CHIP 1/16W 1.5K	1	
R4596		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R4601		ERJ6GEYJ152	CHIP 1/16W 1.5K	1	
R4602		ERJ6GEYJ271	CHIP 1/16W 270	1	
R4603		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R4604		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R4605		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R4606		ERJ6GEYJ105	CHIP 1/16W 1M	1	
R4607		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R4751,52		ERDS2TJ561	C.RESISTOR 1/4W 560	2	
R6001-04		ERJ6GEYJ104	CHIP 1/16W 100K	4	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R6005		ERDS2TJ270	C.RESISTOR 1/4W 27	1	
R6006		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R6007		ERJ6GEYJ683	CHIP 1/16W 68K	1	
R6008		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R6009		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R6011		ERJ6GEYJ184	CHIP 1/16W 180K	1	
R6012		ERJ6GEYJ124	CHIP 1/16W 120K	1	
R6013		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R6014		ERJ6GEYJ101	CHIP 1/16W 100	1	
R6015		ERJ6GEYJ333	CHIP 1/16W 33K	1	
R6016		ERJ6GEYJ183	CHIP 1/16W 180K	1	
R6017		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R6018,19		ERJ6GEYJ153	CHIP 1/16W 15K	2	
R6021		ERDS2TJ223	C.RESISTOR 1/4W 22K	1	
R6022		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R6023		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R6024		ERD25VJ473	C.RESISTOR 1/4W 47K	1	
R6025		ERJ6GEYJ474	CHIP 1/16W 470K	1	
R6027		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R6028		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R6029,30		ERJ6GEYJ562	CHIP 1/16W 5.6K	2	
R6031		ERJ6GEYJ822	CHIP 1/16W 8.2K	1	
R6032		ERD25TJ682	C.RESISTOR 1/4W 6.8K	1	
R6033		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R6034		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R6035		ERDS2TJ221	C.RESISTOR 1/4W 220	1	
R6036		ERD25TJ104	C.RESISTOR 1/4W 100K	1	
R6037		ERD25TJ473	C.RESISTOR 1/4W 47K	1	
R6038		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R6039		ERJ6GEYJ123	CHIP 1/16W 12K	1	
R6040		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R6041		ERG1ANJ680	M.RESISTOR 1W 68	1	
R6042,43		ERJ6GEYJ472	CHIP 1/16W 4.7K	2	
R6044-46		ERJ6GEYJ103	CHIP 1/16W 10K	3	
R6047,48		ERJ6GEYJ104	CHIP 1/16W 100K	2	
R6050		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R6051		ERDS2TJ332	C.RESISTOR 1/4W 3.3K	1	
R6052		ERD2FCJ4R7	C.RESISTOR 2W 4.7	1	<R><!>
R6053		ERDS2TJ223	C.RESISTOR 1/4W 22K	1	
R6054		ERDS2TJ102	C.RESISTOR 1/4W 1K	1	
R6055		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R6056		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R6057		ERDS2TJ221	C.RESISTOR 1/4W 220	1	
R6058,59		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R6060		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R6061		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R6062		ERJ6GEYJ184	CHIP 1/16W 180K	1	
R6063		ERJ6GEYJ474	CHIP 1/16W 470K	1	
R6064		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R6065		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R6066,67		ERJ6GEYJ473	CHIP 1/16W 47K	2	
R6068		ERJ6GEYJ271	CHIP 1/16W 270	1	
R6069		ERJ6GEYJ101	CHIP 1/16W 100	1	
R6070		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R6071		ERJ6GEYJ105	CHIP 1/16W 1M	1	
R6072		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R6073		ERJ6GEYJ333	CHIP 1/16W 33K	1	
R6074,75		ERJ6GEYJ563	CHIP 1/16W 56K	2	
R6076-78		ERJ6GEYJ223	CHIP 1/16W 22K	3	
R6079		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R6080		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R6081		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R6082		ERJ6GEYJ332	CHIP 1/16W 3.3K	1	
R6083		ERD25VJ120	C.RESISTOR 1/4W 12	1	
R6601		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R6602,03		ERJ6GEYJ103	CHIP 1/16W 10K	2	
R6604		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R6605		ERJ6GEYJ183	CHIP 1/16W 180K	1	
R6606		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R6607		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R6608		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R6609		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R6610		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R6611		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R6612		ERJ6GEYJ224	CHIP 1/16W 220K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R6613		ERDS2TJ330	C.RESISTOR 1/4W 33	1	
R6614		ERJ6GEYJ681	CHIP 1/16W 680	1	
R6615		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R6616		ERJ6GEYJ823	CHIP 1/16W 82K	1	
R6617		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R6618		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R6619		ERJ6GEYJ224	CHIP 1/16W 220K	1	
R6620		ERJ6GEYJ681	CHIP 1/16W 680	1	
R6621		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R6622		ERJ6GEYJ823	CHIP 1/16W 82K	1	
R6623		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R6624		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R6625		ERJ6GEYJ224	CHIP 1/16W 220K	1	
R6627,28		ERDS2TJ750	C.RESISTOR 1/4W 75	2	
R6629		ERJ6GEYJ681	CHIP 1/16W 680	1	
R6630		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R6631		ERJ6GEYJ823	CHIP 1/16W 82K	1	
R6632		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R6633		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R6634		ERJ6GEYJ224	CHIP 1/16W 220K	1	
R6635,36		ERJ6GEYJ473	CHIP 1/16W 47K	2	
R6637		ERJ6GEYJ471	CHIP 1/16W 470	1	
R6638		ERDS2TJ750	C.RESISTOR 1/4W 75	1	
R6639		ERJ6GEYJ151	CHIP 1/16W 150	1	
R6641		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R6642		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R6645-47		ERJ6GEYJ104	CHIP 1/16W 100K	3	
R6648		ERJ6GEYJ273	CHIP 1/16W 27K	1	
R6649		ERJ6GEYJ393	CHIP 1/16W 39K	1	
R6650,51		ERJ6GEYJ223	CHIP 1/16W 22K	2	
R6652		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R6653		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R6654		ERDS2TJ750	C.RESISTOR 1/4W 75	1	
R6663		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R6664		ERDS2TJ221	C.RESISTOR 1/4W 220	1	
R6665		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R6666		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R6667		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R6668		ERDS2TJ221	C.RESISTOR 1/4W 220	1	
R6669		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R6671-73		ERDS2TJ750	C.RESISTOR 1/4W 75	3	
R6674		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R6675		ERDS2TJ750	C.RESISTOR 1/4W 75	1	
R6678		ERJ6GEY0R00	CHIP 1/16W 0	1	
R6679,80		ERJ6GEYJ103	CHIP 1/16W 10K	2	
R6681		ERJ6GEYJ154	CHIP 1/16W 150K	1	
R6682,83		ERJ6GEYJ103	CHIP 1/16W 10K	2	
R6684,85		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R6686		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R6701		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R6702		ERDS2TJ683	C.RESISTOR 1/4W 68K	1	
R6703		ERJ6GEYJ153	CHIP 1/16W 15K	1	
R6704		ERJ6GEYJ822	CHIP 1/16W 8.2K	1	
R6705		ERJ6GEYJ272	CHIP 1/16W 2.7K	1	
R6706		ERJ6GEYJ682	CHIP 1/16W 6.8K	1	
R6707		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R6708		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R6709		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R6710,11		ERJ6GEYJ561	CHIP 1/16W 560	2	
R6712		ERJ6GEYJ122	CHIP 1/16W 1.2K	1	
R6713		ERJ6GEYJ821	CHIP 1/16W 820	1	
R6714		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R6715		ERJ6GEYJ471	CHIP 1/16W 470	1	
R6716		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R6717		ERJ6GEYJ220	CHIP 1/16W 22	1	
R6718,19		ERJ6GEYJ472	CHIP 1/16W 4.7K	2	
R6720		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R6721		ERJ6GEYJ220	CHIP 1/16W 22	1	
R6722		ERJ6GEYJ100	CHIP 1/16W 10	1	
R6723		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R6724-27		ERJ6GEYJ102	CHIP 1/16W 1K	4	
R6728		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R6729		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R6730		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R6731		ERJ6GEYJ102	CHIP 1/16W 1K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R6732		ERJ6GEY0R00	CHIP 1/16W 0	1	
R6733		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R6734		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R6735		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R6736		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R6737		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R6738,39		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R6740		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R6741		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R6742-45		ERJ6GEYJ473	CHIP 1/16W 47K	4	
R6746-48		ERJ6GEYJ103	CHIP 1/16W 10K	3	
RY4001,02		VSY2036	RELAY	2	
SW4001		VSR0036	SWITCH	1	<R>
SW4002		VSR0037	SWITCH	1	<R>
SW4003		VSS0127	SWITCH	1	<R>
SW6601-05		VSS0214	SWITCH	5	<R>
SW6606		VSS0126	SWITCH	1	<R>
SW6607		VSS0221	SWITCH	1	<R>
SW6608		VSS0126	SWITCH	1	<R>
T4001		VLT0287	TRANSFORMER	1	<R>
VR2001-03		EVMLGGA00B15	V.RESISTOR 100K	3	
VR2004		EVMLGGA00B23	V.RESISTOR 2K	1	
VR4001,02		EVMLGGA00B23	V.RESISTOR 2K	2	
VR4003,04		EVMLGGA00B25	V.RESISTOR 200K	2	
VR4005,06		EVMLGGA00B14	V.RESISTOR 10K	2	
VR4007,08		EVMLGGA00B13	V.RESISTOR 1K	2	
VR4009,10		EVML1GA00B54	V.RESISTOR 2K	2	
VR4501		EVMLGGA00B15	V.RESISTOR 100K	1	
VR4502		EVMLGGA00B54	V.RESISTOR 50K	1	
VR4503		EVMLGGA00B15	V.RESISTOR 100K	1	
VR4504		EVMLGGA00B53	V.RESISTOR 5K	1	
VR4505		EVMLGGA00B15	V.RESISTOR 100K	1	
VR4701		VRV0056	V.RESISTOR	1	
VR6001,02		EVMLGGA00B14	V.RESISTOR 10K	2	
VR6601		EVN32CA00B23	DIODE	1	<R>
X2101		VSX0086	CRYSTAL OSCILLATOR	1	
X6001		VSX0086	CRYSTAL OSCILLATOR	1	
			MISCELLANEOUS		
		VJF0190	FUSE HOLDER	6	<R><!>
E1(3)		VKC0052	HINGE	2	
		VJF0215	BIND	5	
		VJF0489	HINGE	2	
		VSC1107	SHIELD CASE (MIDDLE)	1	
		VMZ0851	INSULATED SHEET	1	
		VSC1776	SHIELD CASE (LOWER)	1	
		VSC1780	SHIELD CASE	1	
		VSC2034	SHIELD CASE (MIDDLE)	1	
		VMZ0987	INSULATED SHEET	1	
		VSC2035	SHIELD CASE (LOWER)	1	
		VWB0010	CLAMP	3	
E2(3)		VGU3044	VR KNOB	1	
E3(3)		VGU3358	VR KNOB	1	
		VJR0133	PIN	11	
E4(3)		VEJ0581	JACK PANEL UNIT	1	
E5(3)		VGH1332	JACK PANEL	1	
E6(3)		VGU4010	VR KNOB	1	
E7(3)		VHN0011	RIVET	3	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
	■	VEP03455A	VIDEO(1) C.B.A.		INCLUDING THE
					VIDEO (1) SUB (1)
					C.B.A.(VEP00K39A)
					VIDEO (1) SUB (2)
					C.B.A.(VEP00K40A)
					VIDEO DELAY (1)
					C.B.A.(VEP00K69A)
			CAPACITORS		
C3001		ECUM1H330JCN	CHIP 50V 33P	1	
C3002		ECUX1H221JCN	CHIP 50V 220P	1	
C3003		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3004		ECEA1HKSR33I	E.CAPACITOR 50V 0.33U	1	
C3005		ECUX1H330JCN	CHIP 50V 33P	1	
C3006		ECUX1H121JCN	CHIP 50V 120P	1	
C3007,08		ECUX1H151JCN	CHIP 50V 150P	2	
C3009		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C3010,11		ECUX1H103KBN	CHIP 50V 0.01U	2	
C3012		ECEA1EKS3R3I	E.CAPACITOR 25V 3.3U	1	
C3013		ECEA0JSS471	E.CAPACITOR 6.3V 470U	1	
C3014		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3015		ECEA1EKN3R3	E.CAPACITOR 25V 3.3U	1	
C3016		ECEA1EKS3R3I	E.CAPACITOR 25V 3.3U	1	
C3017		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C3018		ECUX1H390KCN	CHIP 50V 39P	1	
C3019		ECUX1H120KCN	CHIP 50V 12P	1	
C3020		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C3021		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3022		ECEA0JK221	E.CAPACITOR 6.3V 220U	1	
C3023		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C3024		ECEA1HKS2R2I	E.CAPACITOR 50V 2.2U	1	
C3025-27		ECEA1EKS3R3I	E.CAPACITOR 25V 3.3U	3	
C3028		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C3031		ECUX1H121JCN	CHIP 50V 120P	1	
C3032		ECUX1H681JN	CHIP 50V 680P	1	
C3033		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3034		ECEA1CK101	E.CAPACITOR 16V 100U	1	
C3035-37		ECUX1H103KBN	CHIP 50V 0.01U	3	
C3039		ECUX1H101JCN	CHIP 50V 100P	1	
C3040		ECUX1H680JCN	CHIP 50V 68P	1	
C3041		ECUX1H391JN	CHIP 50V 390P	1	
C3042		ECUX1H101JCN	CHIP 50V 100P	1	
C3043		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3044		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C3045		ECEA1CK101	E.CAPACITOR 16V 100U	1	
C3046		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3047		ECQB1H333JH	P.CAPACITOR 50V 0.033U	1	
C3048		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C3049		ECQP1H102GZ	E.CAPACITOR 50V 1000P	1	
C3050		ECEA1EKS4R7I	E.CAPACITOR 25V 4.7U	1	
C3051		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C3052		ECEA1EKS4R7I	E.CAPACITOR 25V 4.7U	1	
C3053		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3054		ECUX1H121JCN	CHIP 50V 120P	1	
C3055		ECQB1H333JH	P.CAPACITOR 50V 0.033U	1	
C3056		VCYD1C104MR1	S.CAPACITOR 16V 0.1U	1	
C3057		ECUX1H270JCN	CHIP 50V 27P	1	
C3058		ECUX1H680JCN	CHIP 50V 68P	1	
C3059		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3062,66		ECUX1H151JCN	CHIP 50V 150P	2	
C3067		ECEA1CKN220	E.CAPACITOR 16V 22U	1	
C3068,69		ECEA1CKS330I	E.CAPACITOR 16V 33U	2	
C3070		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3071		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C3072		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C3073		ECEA1CK101	E.CAPACITOR 16V 100U	1	
C3074		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3075,76		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	2	
C3078		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C3079		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3080		ECEA1CK101	E.CAPACITOR 16V 100U	1	
C3081		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C3082		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C3083		ECEA0JKN470	E.CAPACITOR 6.3V 47U	1	
C3084		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3085,86		ECUX1H271JCN	CHIP 50V 270P	2	
C3087		ECUX1H820JCN	CHIP 50V 82P	1	
C3088		ECUX1H221JCN	CHIP 50V 220P	1	
C3089		ECUX1H271JCN	CHIP 50V 270P	1	
C3090		ECUX1H820JCN	CHIP 50V 82P	1	
C3091		ECUX1H271JCN	CHIP 50V 270P	1	
C3092		ECUX1H221JCN	CHIP 50V 220P	1	
C3093		ECUX1H271JCN	CHIP 50V 270P	1	
C3094		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C3095,96		ECEA1EKS4R7I	E.CAPACITOR 25V 4.7U	2	
C3097		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C3098		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3099,100		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	2	
C3101,02		ECEA1CKS100	E.CAPACITOR 16V 10U	2	
C3103		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C3104		ECUX1H220KCN	CHIP 50V 22P	1	
C3105		ECUX1H820JCN	CHIP 50V 82P	1	
C3106		ECUX1H121JCN	CHIP 50V 120P	1	
C3107		ECEA1AKS470I	E.CAPACITOR 10V 47U	1	
C3108		ECEA1CKS470I	E.CAPACITOR 16V 47U	1	
C3109		ECUX1H120KCN	CHIP 50V 12P	1	
C3110		ECUX1H150JCN	CHIP 50V 15P	1	
C3111,12		ECEA0JKS470	E.CAPACITOR 6.3V 47U	2	
C3113		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3114		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C3115		ECEA1CK101	E.CAPACITOR 16V 100U	1	
C3116		ECUX1H561JN	CHIP 50V 560P	1	
C3117,18		ECEA1CK101	E.CAPACITOR 16V 100U	2	
C3119		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3120		ECUX1H680JCN	CHIP 50V 68P	1	
C3121,22		ECUX1H150JCN	CHIP 50V 15P	2	
C3123		ECUX1H221JCN	CHIP 50V 220P	1	
C3124		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3125		ECCF1H070DC	C.CAPACITOR 50V 7P	1	
C3126		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3127		ECUX1H470JCN	CHIP 50V 47P	1	
C3128		ECUX1H820JCN	CHIP 50V 82P	1	
C3129		ECUX1H391JN	CHIP 50V 390P	1	
C3130		ECUX1H820JCN	CHIP 50V 82P	1	
C3131,32		ECUX1H180JCN	CHIP 50V 18P	2	
C3133		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3134		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C3135		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C3136		ECUX1H470JCN	CHIP 50V 47P	1	
C3137		ECUX1H101JCN	CHIP 50V 100P	1	
C3139		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C3140		ECEA0JU471	E.CAPACITOR 6.3V 470U	1	
C3141		ECEA0JK221	E.CAPACITOR 6.3V 220U	1	
C3142		ECEA1CK101	E.CAPACITOR 16V 100U	1	
C3143		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C3144		ECEA0JK221	E.CAPACITOR 6.3V 220U	1	
C3145		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C3146		ECUX1H820JCN	CHIP 50V 82P	1	
C3147		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C3149		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C3150		ECEA1EKS3R3I	E.CAPACITOR 25V 3.3U	1	
C3151		ECEA1AKS470I	E.CAPACITOR 10V 47U	1	
C3152,53		ECUX1H103KBN	CHIP 50V 0.01U	2	
C3155		ECEA1CK101	E.CAPACITOR 16V 100U	1	
C3156		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C3157		ECEA1ASS102	E.CAPACITOR 10V 1000U	1	
C3158,59		ECEA0JKS470	E.CAPACITOR 6.3V 47U	2	
C3160		ECUX1H101JCN	CHIP 50V 100P	1	
C3163		ECEA1AKS470I	E.CAPACITOR 10V 47U	1	
C3164		ECUX1H220JCN	CHIP 50V 22P	1	
C3165		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C3169		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C3170		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3171		ECUX1H390KCN	CHIP 50V 39P	1	
C3172		ECEA1CKS470I	E.CAPACITOR 16V 42U	1	
C3173		ECUM1H270JCN	CHIP 50V 27P	1	
C3174		ECUM1H470JCN	CHIP 50V 47P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
D3001		1SS283	DIODE	1	<R>
D3002		MA151K	DIODE	1	<R>
D3003		MA4033	DIODE	1	<R>
D3004		MA151WK	DIODE	1	<R>
D3005		MA3110M	DIODE	1	<R>
D3006		MA151K	DIODE	1	<R>
D3007		1SS283	DIODE	1	<R>
D3008		MA165	DIODE	1	OR 1SS119, 1SS254<R>
D3009-11		1SS283	DIODE	3	<R>
D3012,13		MA151K	DIODE	2	<R>
D3014		MA3110M	DIODE	1	<R>
D3016		MA165	DIODE	1	OR 1SS119, 1SS254<R>
FL3001		VLF0472	FILTER	1	
FL3002		VLF0580	FILTER	1	
FL3004		VLF0581	FILTER	1	
FL3005		ELB4Q053	FILTER	1	
FL3006		VLD0125	DELAY LINE	1	
IC3001		VEFY013	FIC	1	<R>
IC3002		VCR0188	IC	1	<R>
IC3003		AN6306S	IC	1	<R>
IC3004		VC2031FP	IC	1	<R>
IC3005		VCR0096	IC	1	<R>
IC3006		AN78N05	IC	1	<R>
IC3008		MN4053BS	IC	1	<R>
IC3009		AN6308S	IC	1	<R>
L3001		VLQ0207K181	COIL 180UH	1	
L3002		VLQ0207K820	COIL 82UH	1	
L3003		VLQ0207K181	COIL 180UH	1	
L3004		VLQ0213K470	COIL 47UH	1	
L3005-07		VLQ0207K101	COIL 100UH	3	
L3010-12		VLQ0207K101	COIL 100UH	3	
L3013		VLQ0207K681	COIL 680UH	1	
L3014		VLQ0207K470	COIL 47UH	1	
L3015		VLQ0207K151	COIL 150UH	1	
L3017-21		VLQ0207K101	COIL 100UH	5	
L3022		VLQ0213K470	COIL 47UH	1	
L3023,24		VLQ0207K101	COIL 100UH	2	
L3025		VLQ0207K1R0	COIL 1UH	1	
L3028		VLQ0207J101	COIL 100UH	1	
L3029		VLQ0207K5R6	COIL 5.6UH	1	
L3030		VLQ0207K330	COIL 33UH	1	
L3031		VLQ0207K470	COIL 47UH	1	
L3032		VLQ0207K181	COIL 180UH	1	
L3033		VLQ0207K150	COIL 15UH	1	
L3034		VLQ0207K220	COIL 22UH	1	
L3035		VLQ0207K1R0	COIL 1UH	1	
L3036		VLQ0207K101	COIL 100UH	1	
L3037		VLQ0207K390	COIL 39UH	1	
P3001		VJP1605T	CONNECTOR(MALE) 12P	1	
P3002		VJP1597T	CONNECTOR(MALE) 4P	1	
P3003,04		VJP1409	CONNECTOR(MALE)	2	
P3005,06		VJP1616T	CONNECTOR(MALE)	2	
Q3001		2SC2295	TRANSISTOR CHIP	1	(B,C)<R>
Q3002-04		2SD601	TRANSISTOR CHIP	3	(Q,R,S)<R>
Q3005		2SC2295	TRANSISTOR CHIP	1	(B,C)<R>
Q3006,07		2SD601	TRANSISTOR CHIP	2	(Q,R,S)<R>
Q3008		2SB710	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3009,10		2SC2295	TRANSISTOR CHIP	2	(B,C)<R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
Q3011-13		2SB709	TRANSISTOR CHIP	3	(Q,R,S)<R>
Q3015-17		2SC2295	TRANSISTOR CHIP	3	(B,C)<R>
Q3018,19		2SD601	TRANSISTOR CHIP	2	(Q,R,S)<R>
Q3020		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3021,22		2SD601	TRANSISTOR CHIP	2	(Q,R,S)<R>
Q3023		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3024,25		2SC2295	TRANSISTOR CHIP	2	(B,C)<R>
Q3026		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3027		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3028		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3029		2SC2295	TRANSISTOR CHIP	1	(B,C)<R>
Q3030		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3031		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3032		2SC2295	TRANSISTOR CHIP	1	(B,C)<R>
Q3033		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3034,35		2SC2295	TRANSISTOR CHIP	2	(B,C)<R>
Q3036-38		2SD601	TRANSISTOR CHIP	3	(Q,R,S)<R>
Q3039		2SC2295	TRANSISTOR CHIP	1	(B,C)<R>
Q3040		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3041,42		2SC2295	TRANSISTOR CHIP	2	(B,C)<R>
Q3043		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3044		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3045		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3046		2SD638	TRANSISTOR	1	(Q,R,S)<R>
Q3047		2SA1022	TRANSISTOR CHIP	1	(B,C)<R>
Q3048,49		2SC2295	TRANSISTOR CHIP	2	(B,C)<R>
Q3050		2SD638	TRANSISTOR	1	(Q,R,S)<R>
Q3051		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3052		2SC2295	TRANSISTOR CHIP	1	(B,C)<R>
Q3053		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3054,55		2SB709	TRANSISTOR CHIP	2	(Q,R,S)<R>
Q3056		2SA1022	TRANSISTOR CHIP	1	(B,C)<R>
Q3057		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3058		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3059		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3060		2SC2295	TRANSISTOR CHIP	1	(B,C)<R>
Q3061		2SA1022	TRANSISTOR CHIP	1	(B,C)<R>
Q3062		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
QR3001-08		UN2213	TRANSISTOR-RESISTOR	8	<R>
QR3010-13		UN2213	TRANSISTOR-RESISTOR	4	<R>
QR3015,17		UN2213	TRANSISTOR-RESISTOR	2	<R>
QR3018		UN2212	TRANSISTOR-RESISTOR	1	<R>
			RESISTORS		
R3001		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R3002		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3003		ERJ6GEYJ272	CHIP 1/16W 2.7K	1	
R3004		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3005		ERJ6GEYJ182	CHIP 1/16W 1.8K	1	
R3006		ERJ6GEYJ332	CHIP 1/16W 3.3K	1	
R3007		ERJ6GEYJ331	CHIP 1/16W 330	1	
R3008		ERJ6GEYJ273	CHIP 1/16W 27K	1	
R3009		ERJ6GEYJ393	CHIP 1/16W 39K	1	
R3010		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3011		ERJ6GEYJ272	CHIP 1/16W 2.7K	1	
R3012		ERJ6GEYJ152	CHIP 1/16W 1.5K	1	
R3013		ERJ6GEYJ100	CHIP 1/16W 10	1	
R3014		ERJ6GEYJ331	CHIP 1/16W 330	1	
R3015		ERJ6GEYJ333	CHIP 1/16W 33K	1	
R3016		ERJ6GEYJ681	CHIP 1/16W 680	1	
R3017		ERJ6GEYJ151	CHIP 1/16W 150	1	
R3018		ERJ6GEYJ681	CHIP 1/16W 680	1	
R3019		ERJ6GEYJ152	CHIP 1/16W 1.5K	1	
R3020		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R3021		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R3022		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R3023		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R3024		ERJ6GEYJ153	CHIP 1/16W 15K	1	
R3025		ERJ6GEYJ684	CHIP 1/16W 680K	1	
R3027		ERJ6GEYJ182	CHIP 1/16W 1.8K	1	
R3028		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3029		ERJ6GEYJ123	CHIP 1/16W 12K	1	
R3030		ERJ6GEYJ273	CHIP 1/16W 27K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R3031		ERJ6GEYJ471	CHIP 1/16W 470	1	
R3032		ERJ6GEYG122	CHIP 1/16W 1.2K	1	
R3033		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R3034		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3035		ERJ6GEYG271	CHIP 1/16W 270	1	
R3036		ERJ6GEYJ152	CHIP 1/16W 1.5K	1	
R3037		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3038		ERJ6GEYJ332	CHIP 1/16W 3.3K	1	
R3039,40		ERJ6GEYJ223	CHIP 1/16W 22K	2	
R3041,42		ERJ6GEYJ562	CHIP 1/16W 5.6K	2	
R3043		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3044		ERJ6GEYJ330	CHIP 1/16W 33	1	
R3045		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R3046,47		ERJ6GEYJ223	CHIP 1/16W 22K	2	
R3048		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3049		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R3050		ERJ6GEYJ152	CHIP 1/16W 1.5K	1	
R3051		ERJ6GEYJ331	CHIP 1/16W 330	1	
R3052		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3053		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R3054		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3055		ERJ6GEYJ471	CHIP 1/16W 470	1	
R3056		ERJ6GEYJ101	CHIP 1/16W 100	1	
R3057		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R3058		ERJ6GEYJ392	CHIP 1/16W 3.9K	1	
R3059		ERJ6GEYJ123	CHIP 1/16W 12K	1	
R3060		ERJ6GEYJ681	CHIP 1/16W 680	1	
R3061		ERJ6GEYJ122	CHIP 1/16W 1.2K	1	
R3062		ERJ6GEYJ821	CHIP 1/16W 820	1	
R3063		ERJ6GEYJ561	CHIP 1/16W 560	1	
R3064		ERJ6GEYJ682	CHIP 1/16W 6.8K	1	
R3065		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R3066		ERJ6GEYJ332	CHIP 1/16W 3.3K	1	
R3067		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3068		ERJ6GEYJ681	CHIP 1/16W 680	1	
R3069,70		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R3071		ERJ6GEYJ331	CHIP 1/16W 330	1	
R3072		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R3073		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3075		ERJ6GEYJ154	CHIP 1/16W 150K	1	
R3076		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3077		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R3078		ERJ6GEYG221	CHIP 1/16W 220	1	
R3079		ERJ6GEYG102	CHIP 1/16W 1K	1	
R3080		ERJ6GEYJ271	CHIP 1/16W 270	1	
R3081		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3082		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R3083-87		ERJ6GEYJ102	CHIP 1/16W 1K	5	
R3088		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R3089		ERJ6GEYJ564	CHIP 1/16W 560K	1	
R3090		ERJ6GEYJ821	CHIP 1/16W 820	1	
R3091		ERJ6GEYJ561	CHIP 1/16W 560	1	
R3092		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R3093		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3094		ERJ6GEYJ392	CHIP 1/16W 3.9K	1	
R3095		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3096		ERJ6GEYJ471	CHIP 1/16W 470	1	
R3097		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3099,01		ERJ6GEY0R00	CHIP 1/16W 0	2	
R3102		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3103		ERJ6GEYJ330	CHIP 1/16W 33	1	
R3104		ERJ6GEYJ561	CHIP 1/16W 560	1	
R3105		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R3106		ERJ6GEYJ123	CHIP 1/16W 12K	1	
R3107		ERDS2TJ271	C.RESISTOR 1/4W 270	1	
R3108,09		ERJ6GEYJ223	CHIP 1/16W 22K	2	
R3110		ERJ6GEYJ471	CHIP 1/16W 470	1	
R3111		ERJ6GEYJ821	CHIP 1/16W 820	1	
R3112		ERJ6GEYJ471	CHIP 1/16W 470	1	
R3113		ERJ6GEYJ561	CHIP 1/16W 560	1	
R3114		ERJ6GEYJ821	CHIP 1/16W 820	1	
R3115		ERDS2TJ331	C.RESISTOR 1/4W 330	1	
R3116		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3117		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R3118		ERJ6GEYJ103	CHIP 1/16W 10K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R3119		ERJ6GEYJ152	CHIP 1/16W 1.5K	1	
R3120		ERJ6GEYG682	CHIP 1/16W 6.8K	1	
R3121		ERJ6GEYG333	CHIP 1/16W 33K	1	
R3122		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3123		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R3124		ERJ6GEYJ272	CHIP 1/16W 2.7K	1	
R3125		ERJ6GEYJ392	CHIP 1/16W 3.9K	1	
R3126,27		ERJ6GEYJ122	CHIP 1/16W 1.2K	2	
R3128		ERJ6GEYJ330	CHIP 1/16W 33	1	
R3129		ERJ6GEYJ681	CHIP 1/16W 680	1	
R3130		ERJ6GEYJ182	CHIP 1/16W 1.8K	1	
R3131		ERJ6GEYJ272	CHIP 1/16W 2.7K	1	
R3132		ERJ6GEYG682	CHIP 1/16W 6.8K	1	
R3133		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3134		ERJ6GEYG273	CHIP 1/16W 27K	1	
R3135,36		ERJ6GEYJ472	CHIP 1/16W 4.7K	2	
R3137		ERJ6GEYJ822	CHIP 1/16W 8.2K	1	
R3138		ERJ6GEYJ681	CHIP 1/16W 680	1	
R3139		ERJ6GEYJ272	CHIP 1/16W 2.7K	1	
R3140		ERJ6GEYJ271	CHIP 1/16W 270	1	
R3141		ERJ6GEYJ680	CHIP 1/16W 68	1	
R3142		ERJ6GEYJ182	CHIP 1/16W 1.8K	1	
R3143		ERJ6GEYJ823	CHIP 1/16W 82K	1	
R3144		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R3145		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3146		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R3147		ERJ6GEYJ333	CHIP 1/16W 33K	1	
R3148		ERJ6GEYJ184	CHIP 1/16W 180K	1	
R3149,50		ERJ6GEYJ332	CHIP 1/16W 3.3K	2	
R3151		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3152		ERJ6GEYJ152	CHIP 1/16W 1.5K	1	
R3153		ERJ6GEYG102	CHIP 1/16W 1K	1	
R3154		ERJ6GEYJ823	CHIP 1/16W 82K	1	
R3155		ERJ6GEYG102	CHIP 1/16W 1K	1	
R3156		ERJ6GEYG471	CHIP 1/10W 470	1	
R3157		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3158		ERJ6GEYG152	CHIP 1/16W 1.5K	1	
R3159		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3160		ERJ6GEYG332	CHIP 1/16W 3.3K	1	
R3161,62		ERJ6GEYJ103	CHIP 1/16W 10K	2	
R3163,64		ERJ6GEYJ223	CHIP 1/16W 22K	2	
R3165		ERJ6GEYJ331	CHIP 1/16W 330	1	
R3166		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3167		ERJ6GEYJ122	CHIP 1/16W 1.2K	1	
R3168		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R3169		ERJ6GEYJ122	CHIP 1/16W 1.2K	1	
R3170		ERJ6GEYJ561	CHIP 1/16W 560	1	
R3171		ERJ6GEYJ220	CHIP 1/16W 22	1	
R3172		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3173		ERJ6GEYJ471	CHIP 1/16W 470	1	
R3174		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3175		ERJ6GEYJ122	CHIP 1/16W 1.2K	1	
R3176		ERJ6GEYJ392	CHIP 1/16W 3.9K	1	
R3177		ERJ6GEYJ561	CHIP 1/16W 560	1	
R3178		ERJ6GEYJ121	CHIP 1/16W 120	1	
R3179		ERJ6GEYJ393	CHIP 1/16W 39K	1	
R3180		ERJ6GEYJ121	CHIP 1/16W 120	1	
R3181		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3182,83		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R3184		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R3185		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3186		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3187		ERJ6GEYJ682	CHIP 1/16W 6.8K	1	
R3188		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3189		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3190		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R3192		ERJ6GEYJ151	CHIP 1/16W 150	1	
R3193		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3194		ERJ6GEYJ122	CHIP 1/16W 1.2K	1	
R3195		ERJ6GEYJ392	CHIP 1/16W 3.9K	1	
R3196,97		ERJ6GEYJ561	CHIP 1/16W 560	2	
R3198		ERJ6GEYJ681	CHIP 1/16W 680	1	
R3199		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3200		ERJ6GEYJ471	CHIP 1/16W 470	1	
R3201		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R3202,03		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R3204		ERJ6GEYJ822	CHIP 1/16W 8.2K	1	
R3205		ERJ6GEYJ332	CHIP 1/16W 3.3K	1	
R3206		ERDS2TJ221	C.RESISTOR 1/4W 220	1	
R3208		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3209		ERJ6GEYJ392	CHIP 1/16W 3.9K	1	
R3210		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3211		ERJ6GEYJ181	CHIP 1/16W 180	1	
R3212		ERJ6GEYJ331	CHIP 1/16W 330	1	
R3213		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R3214		ERDS2TJ221	C.RESISTOR 1/4W 220	1	
R3215		ERJ6GEYJ331	CHIP 1/16W 330	1	
R3216		ERJ6GEYG332	CHIP 1/16W 3.3K	1	
R3217		ERJ6GEYJ471	CHIP 1/16W 470	1	
R3218		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R3219		ERJ6GEYJ122	CHIP 1/16W 1.2K	1	
R3220		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3221		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R3222		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R3223,24		ERJ6GEYJ103	CHIP 1/16W 10K	2	
R3225		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R3226,27		ERJ6GEYJ103	CHIP 1/16W 10K	2	
R3228,29		ERJ6GEYJ222	CHIP 1/16W 2.2K	2	
R3230		ERJ6GEYJ393	CHIP 1/16W 39K	1	
R3231		ERJ6GEYJ273	CHIP 1/16W 27K	1	
R3232		ERJ6GEYJ122	CHIP 1/16W 1.2K	1	
R3233		ERJ6GEYJ101	CHIP 1/16W 100	1	
R3234		ERJ6GEYJ391	CHIP 1/16W 390	1	
R3235		ERJ6GEYJ152	CHIP 1/16W 1.5K	1	
R3237		ERJ6GEYG622	CHIP 1/16W 6.2K	1	
R3238		ERJ6GEYJ821	CHIP 1/16W 820	1	
R3240		ERJ6GEYJ561	CHIP 1/16W 560	1	
R3241		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R3242		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R3243		ERJ6GEYJ332	CHIP 1/16W 3.3K	1	
R3244,45		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R3246		ERJ6GEYJ152	CHIP 1/16W 1.5K	1	
R3247,48		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R3249		ERJ6GEYJ152	CHIP 1/16W 1.5K	1	
R3250		ERJ6GEYJ102	CHIP 1/16W 1K	1	
VR3001,02		EVM7YSX00B13	V.RESISTOR 1K	2	
VR3003,04		EVM7YSX00B53	V.RESISTOR 5K	2	
VR3005,06		EVM7YSX00B54	V.RESISTOR 50K	2	
VR3007		EVM7YSW00B23	V.RESISTOR 2K	1	
VR3008		EVM7YSW00B13	V.RESISTOR 1K	1	
VR3009		EVM7YSX00B14	V.RESISTOR 10K	1	
VR3010		EVM7YSX00B23	V.RESISTOR 2K	1	
VR3011		EVM7YSX00B54	V.RESISTOR 50K	1	
VR3012		EVM7YSW00B23	V.RESISTOR 2K	1	
			MISCELLANEOUS		
		VJR0303	PACK PIN 6P	1	
		VJR0308	PACK PIN 11P	1	
		VJR0301	PACK PIN 4P	1	
		VJR0304	PACK PIN 7P	1	
		VJR0133	PIN	1	
	■	VEP03456A	VIDEO(2) C.B.A.		INCLUDENG THE
					CCD C.B.A.(VEP03478A)
					VIDEO (2) SUB (1)
					C.B.A.(VEP00L26A)
					VIDEO (2) SUB (2)
					C.B.A.(VEP00L18A)
			CAPACITORS		
C3501-04		ECEA0JKS470	E.CAPACITOR 6.3V 47U	4	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C3505		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3506		ECEA1CKS470I	E.CAPACITOR 16V 47U	1	
C3514		ECEA0JKN470	E.CAPACITOR 6.3V 47U	1	
C3515,16		ECUX1H103KBN	CHIP 50V 0.01U	2	
C3517		ECUX1H470JCN	CHIP 50V 47P	1	
C3518		ECQB1H222JH	P.CAPACITOR 50V 2200P	1	
C3519		ECQB1H122JH	P.CAPACITOR 50V 1200P	1	
C3520-23		ECUX1H103KBN	CHIP 50V 0.01U	4	
C3524		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C3525		ECSE1VT1052	TANTALUM 35V 1U	1	
C3526		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3527		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C3528		ECUX1H470JCN	CHIP 50V 47P	1	
C3530		ECEA0JSN470	E.CAPACITOR 6.3V 47U	1	
C3531		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C3532,33		ECUX1H103KBN	CHIP 50V 0.01U	2	
C3534,36		ECEA0JKS470	E.CAPACITOR 6.3V 47U	2	
C3538		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3539		ECUX1H270KCN	CHIP 50V 27P	1	
C3540		ECUX1H680KCN	CHIP 50V 68P	1	
C3541-43		ECUX1H103KBN	CHIP 50V 0.01U	3	
C3544,45		ECEA0JSN470	E.CAPACITOR 6.3V 47U	2	
C3546		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3547		ECUM1H270KBN	CHIP 50V 27P	1	
C3548		ECUM1H680KBN	CHIP 50V 68P	1	
C3549		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3550		ECUX1H271KBN	CHIP 50V 270P	1	
C3551,52		ECEA1EKS4R7I	E.CAPACITOR 25V 4.7U	2	
C3553		ECEA1EKN4R7	E.CAPACITOR 25V 4.7U	1	
C3554		ECUX1H331KBN	CHIP 50V 330P	1	
C3555		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C3556		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C3557		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C3558		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3559		ECUX1H123KBN	CHIP 50V 0.012U	1	
C3560-62		ECUX1H103KBN	CHIP 50V 0.01U	3	
C3563		ECUX1H270KCN	CHIP 50V 27P	1	
C3565		ECUX1H331KBN	CHIP 50V 330P	1	
C3566,67		ECUX1H103KBN	CHIP 50V 0.01U	2	
C3568		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C3569		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3570		ECUX1H390KCN	CHIP 50V 39P	1	
C3571		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3572		ECUX1H101KCN	CHIP 50V 100P	1	
C3573		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3574		ECEA1CK101	E.CAPACITOR 16V 100U	1	
C3575		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3576		ECEA1CK101	E.CAPACITOR 16V 100U	1	
C3578		ECV1ZW60X65	TRIMMER 60P	1	
C3579		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3580		ECUX1H470KCN	CHIP 50V 47P	1	
C3581		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3582		ECUX1H271KCN	CHIP 50V 270P	1	
C3583		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3584		ECUX1H680KCN	CHIP 50V 68P	1	
C3585		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3586		ECEA0JK221	E.CAPACITOR 6.3V 220U	1	
C3587		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3588		ECEA1CKS470I	E.CAPACITOR 16V 47U	1	
C3589		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C3590		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3591		ECUX1H221KBN	CHIP 50V 220P	1	
C3592		ECUX1H680KCN	CHIP 50V 68P	1	
C3593,94		ECUX1H103KBN	CHIP 50V 0.01U	2	
C3595		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C3596		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3597		ECEA1EKS4R7I	E.CAPACITOR 25V 4.7U	1	
C3598		ECEA1CK101	E.CAPACITOR 16V 100U	1	
C3600		ECUX1H390KCN	CHIP 50V 39P	1	
C3601		ECUX1H471KBN	CHIP 50V 470P	1	
C3602,03		ECUX1H103KBN	CHIP 50V 0.01U	2	
C3604,05		ECEA0JKS470	E.CAPACITOR 6.3V 47U	2	
C3606		ECUX1H560KCN	CHIP 50V 56P	1	
C3607-10		ECUX1H103KBN	CHIP 50V 0.01U	4	
C3611		ECUX1H222KBN	CHIP 50V 2200P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C3612		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3613		ECEA1EKS3R3I	E.CAPACITOR 25V 3.3U	1	
C3614		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C3615		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3616		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C3617		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3618		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C3619-22		ECUX1H103KBN	CHIP 50V 0.01U	4	
C3623		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C3624		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C3625		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3626		ECEA0JU102	E.CAPACITOR 6.3V 1000U	1	
C3627		ECUX1H080DCN	CHIP 50V 80P	1	
C3628		ECUX1H102KBN	CHIP 50V 1000P	1	
C3629		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3630		ECEA1AM330T	E.CAPACITOR 10V 33U	1	
C3631		ECEA1CK101	E.CAPACITOR 16V 100U	1	
C3633		ECV1ZW60X65	TRIMMER 60P	1	
C3634		ECEA1EKS3R3	E.CAPACITOR 25V 3.3U	1	
C3636		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3637		ECCF1H121JC	C.CAPACITOR 50V 120P	1	
C3638		ECUX1H271KCN	CHIP 50V 270P	1	
C3639		ECEA1AKS470	E.CAPACITOR 10V 47U	1	
C3640-46		ECUX1H103KBN	CHIP 50V 0.01U	7	
C3647		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C3648		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3649		ECEA1CKS470I	E.CAPACITOR 16V 47U	1	
C3650-53		ECUX1H103KBN	CHIP 50V 0.01U	4	
C3654		ECEA1CKS470I	E.CAPACITOR 16V 47U	1	
C3656-59		ECUX1H103KBN	CHIP 50V 0.01U	4	
C3661,63		ECUX1H103KBN	CHIP 50V 0.01U	2	
C3664		ECUX1H220KCN	CHIP 50V 22P	1	
C3665		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3666		ECUX1H270KCN	CHIP 50V 27P	1	
C3667		ECEA1CKS470I	E.CAPACITOR 16V 47U	1	
C3668		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3669		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C3670		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C3671		ECEA1CK101	E.CAPACITOR 16V 100U	1	
C3672		ECUX1H220JCN	CHIP 50V 22P	1	
C3673		ECUX1H100DCN	CHIP 50V 10P	1	
C3674		ECUX1H470JCN	CHIP 50V 47P	1	
C3675		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3676		ECUX1H330JCN	C.CAPACITOR 50V 33P	1	
C3677		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C3678		ECUX1H270JCN	CHIP 50V 27P	1	
C3679		ECUX1H470JCN	CHIP 50V 47P	1	
C3680		ECUX1H150JCN	CHIP 50V 15P	1	
C3681		ECEA1AKS470I	E.CAPACITOR 10V 47U	1	
C3682		ECUX1H220JCN	CHIP 50V 22P	1	
C3683		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3684		ECEA1AKS470I	E.CAPACITOR 10V 47U	1	
C3686		ECEA0JSN470	E.CAPACITOR 6.3V 47U	1	
C3687		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3801		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C3802		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C3803		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3806,07		ECUX1H103KBN	CHIP 50V 0.01U	2	
C3809-12		ECUX1H103KBN	CHIP 50V 0.01U	4	
C3813		ECUX1H390JCN	CHIP 50V 39P	1	
C3814		ECUX1H103KBN	CHIP 50V 0.01U	1	
C3815		ECUX1H472KBN	CHIP 50V 4700P	1	
C3816		ECUX1H473ZFN	CHIP 50V 0.047U	1	
C3817		ECUX1H101JCN	CHIP 50V 100P	1	
C3818		ECUX1H103KBN	CHIP 50V 0.01U	1	
D3502		MA151K	DIODE	1	<R>
D3503		MA3110M	DIODE	1	<R>
D3504		MA151WK	DIODE	1	<R>
D3505		MA151WA	DIODE	1	<R>
D3506,09		MA151K	DIODE	2	<R>
D3510		MA151WK	DIODE	1	<R>
D3511,12		MA151K	DIODE	2	<R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
D3513		MA151WA	DIODE	1	<R>
D3801		MA3062M	DIODE	1	<R>
DL3501		VLD0121B	DELAY LINE	1	
DL3502		VLD0122B	DELAY LINE	1	
FL3501		VLD0127	DELAY LINE	1	
FL3502		VLD0136	FILTER	1	
FL3503		ELB4L016	FILTER	1	
FL3505		ELB4L066	FILTER	1	
FL3507		ELB5A052	FILTER	1	
FL3508		VLD0135	FILTER	1	
FL3509		VLD0125	DELAY LINE	1	
FL3801		VLD0127	DELAY LINE	1	
FL3802		ELXTS470GA	FILTER	1	
FL3803		VLF0568	FILTER	1	
IC3501		MN4053BS	IC	1	<R>
IC3503-05		AN6308S	IC	3	<R>
IC3506		AN6366NS	IC	1	<R>
IC3508,09		AN6308S	IC	2	<R>
IC3510		AN3494NK	IC	1	<R>
IC3511		AN6308S	IC	1	<R>
IC3512		NJM2209S	IC	1	<R>
IC3515		VEFC012	FIC	1	<R>
IC3516		AN6308S	IC	1	<R>
IC3801		MN3801	IC	1	<R>
IC3802		MN3106	IC	1	<R>
L3501		VLQ0207K101	COIL 100UH	1	
L3504		VLQ0177K682	COIL 6800UH	1	
L3505-09		VLQ0207K101	COIL 100UH	5	
L3510,11		VLQ0207K150	COIL 15UH	2	
L3512		VLQ0207K101	COIL 100UH	1	
L3513		VLQ0207K820	COIL 82UH	1	
L3514		VLQ0207K101	COIL 100UH	1	
L3515		VLQ0207K470	COIL 47UH	1	
L3516-19		VLQ0207K101	COIL 100UH	4	
L3520		VLQ0207K390	COIL 39UH	1	
L3521		VLQ0163J680	COIL 68UH	1	
L3522		VLQ0163J270	COIL 27UH	1	
L3524		VLQ0207K101	COIL 100UH	1	
L3525		VLQ0207K6R8	COIL 6.8UH	1	
L3526-28		VLQ0207K101	COIL 100UH	3	
L3529		VLQ0207K330	COIL 33UH	1	
L3530		VLQ0207K220	COIL 22UH	1	
L3531		VLQ0207K101	COIL 100UH	1	
L3532		VLQ0207K680	COIL 68UH	1	
L3533		VLQ0207K270	COIL 27UH	1	
L3534		VLQ0207K390	COIL 39UH	1	
L3535		VLQ0163K150	COIL 15UH	1	
L3536		VLQ0163K820	COIL 82UH	1	
L3537		VLQ0207K101	COIL 100UH	1	
L3538		VLQ0207K221	COIL 220UH	1	
L3539,40		VLQ0163K150	COIL 15UH	2	
L3801		VLQ0207K101	COIL 100UH	1	
P3501		VJP1605T	CONNECTOR(MALE) 12P	1	
P3502		VJP1595T	CONNECTOR(MALE) 2P	1	
P3503		VJP1605T	CONNECTOR(MALE) 12P	1	
P3504		VJP1597T	CONNECTOR(MALE) 4P	1	
P3505		VJP1603T	CONNECTOR(MALE) 10P	1	
P3506		VJP1595T	CONNECTOR(MALE) 2P	1	
Q3501,02		2SC2295	TRANSISTOR CHIP	2	(B,C)<R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
Q3503-06		2SB709	TRANSISTOR CHIP	4	(Q,R,S)<R>
Q3507		2SC2295	TRANSISTOR CHIP	1	(B,C)<R>
Q3508		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3509		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3510		2SC2295	TRANSISTOR CHIP	1	(B,C)<R>
Q3511		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3512,13		2SC2295	TRANSISTOR CHIP	2	(B,C)<R>
Q3514,15		2SD601	TRANSISTOR CHIP	2	(Q,R,S)<R>
Q3516,17		2SA1022	TRANSISTOR CHIP	2	(B,C)<R>
Q3518,19		2SD601	TRANSISTOR CHIP	2	(Q,R,S)<R>
Q3520		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3521		2SB710	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3522		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3523		2SC2295	TRANSISTOR CHIP	1	(B,C)<R>
Q3524		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3525		2SC2295	TRANSISTOR CHIP	1	(B,C)<R>
Q3526		2SA1022	TRANSISTOR CHIP	1	(B,C)<R>
Q3527		2SB710	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3528		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3529		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3530,31		2SD601	TRANSISTOR CHIP	2	(Q,R,S)<R>
Q3532		2SD638	TRANSISTOR	1	(Q,R,S)<R>
Q3533,34		2SB710	TRANSISTOR CHIP	2	(Q,R,S)<R>
Q3535-38		2SD601	TRANSISTOR CHIP	4	(Q,R,S)<R>
Q3539,40		2SB709	TRANSISTOR CHIP	2	(Q,R,S)<R>
Q3541		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3542		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3543		2SA1022	TRANSISTOR CHIP	1	(B,C)<R>
Q3544-46		2SC2295	TRANSISTOR CHIP	3	(B,C)<R>
Q3547		2SA1022	TRANSISTOR CHIP	1	(B,C)<R>
Q3548		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3549		2SC2295	TRANSISTOR CHIP	1	(B,C)<R>
Q3550		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3551,52		2SC2295	TRANSISTOR CHIP	2	(B,C)<R>
Q3553		2SA1022	TRANSISTOR CHIP	1	(B,C)<R>
Q3554		2SC2295	TRANSISTOR CHIP	1	(B,C)<R>
Q3555		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3556		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3557		2SA1022	TRANSISTOR CHIP	1	(B,C)<R>
Q3558		2SC2295	TRANSISTOR CHIP	1	(B,C)<R>
Q3559		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3560,61		2SC2295	TRANSISTOR CHIP	2	(B,C)<R>
Q3562-65		2SD601	TRANSISTOR CHIP	4	(Q,R,S)<R>
Q3566		2SC2295	TRANSISTOR CHIP	1	(B,C)<R>
Q3567		2SA1022	TRANSISTOR CHIP	1	(B,C)<R>
Q3568,69		2SD601	TRANSISTOR CHIP	2	(Q,R,S)<R>
Q3801		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q3802		2SC2295	TRANSISTOR CHIP	1	(B,C)<R>
Q3803		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>
QR3502,03		UN2213	TRANSISTOR-RESISTOR	2	<R>
QR3504		UN2113	TRANSISTOR-RESISTOR	1	<R>
QR3505-07		UN2213	TRANSISTOR-RESISTOR	3	<R>
QR3508		UN2211	TRANSISTOR-RESISTOR	1	<R>
QR3509,10		UN2213	TRANSISTOR-RESISTOR	2	<R>
QR3515-20		UN2213	TRANSISTOR-RESISTOR	6	<R>
			RESISTORS		
R3501		ERJ6GEYJ561	CHIP 1/16W 560	1	
R3502		ERJ6GEYJ471	CHIP 1/16W 470	1	
R3503		ERJ6GEYJ331	CHIP 1/16W 330	1	
R3504		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3505		ERJ6GEYJ183	CHIP 1/16W 180K	1	
R3506		ERJ6GEYJ393	CHIP 1/16W 39K	1	
R3507		ERDS2TJ102	C.RESISTOR 1/4W 1K	1	
R3508,09		ERJ6GEYJ223	CHIP 1/16W 22K	2	
R3510,11		ERJ6GEYJ103	CHIP 1/16W 10K	2	
R3512		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3513		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R3514		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R3516		ERJ6GEYJ122	CHIP 1/16W 1.2K	1	
R3517-19		ERJ6GEYJ102	CHIP 1/16W 1K	3	
R3520		ERJ6GEYJ822	CHIP 1/16W 8.2K	1	
R3521		ERJ6GEYJ681	CHIP 1/16W 680	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R3522,23		ERJ6GEYJ472	CHIP 1/16W 4.7K	2	
R3524		ERJ6GEYJ332	CHIP 1/16W 3.3K	1	
R3525		ERJ6GEYJ822	CHIP 1/16W 8.2K	1	
R3526		ERJ6GEYJ273	CHIP 1/16W 27K	1	
R3527		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3528		ERJ6GEYJ182	CHIP 1/16W 1.8K	1	
R3529		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R3530		ERJ6GEYJ272	CHIP 1/16W 2.7K	1	
P3531-33		ERJ6GEYJ102	CHIP 1/16W 1K	3	
R3534		ERJ6GEYJ152	CHIP 1/16W 1.5K	1	
R3535		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R3536		ERJ6GEYJ332	CHIP 1/16W 3.3K	1	
R3537		ERJ6GEYJ123	CHIP 1/16W 12K	1	
R3538		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R3539		ERJ6GEYJ152	CHIP 1/16W 1.5K	1	
R3540,41		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R3542		ERJ6GEYJ122	CHIP 1/16W 1.2K	1	
R3543		ERJ6GEYJ393	CHIP 1/16W 39K	1	
R3544		ERJ6GEYJ332	CHIP 1/16W 3.3K	1	
R3545		ERJ6GEYJ152	CHIP 1/16W 1.5K	1	
R3546		ERJ6GEYJ471	CHIP 1/16W 470	1	
R3547		ERJ6GEYJ391	CHIP 1/16W 390	1	
R3548		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3549		ERJ6GEYJ471	CHIP 1/16W 470	1	
R3550		ERJ6GEYJ823	CHIP 1/16W 82K	1	
R3551,52		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R3553		ERJ6GEYJ122	CHIP 1/16W 1.2K	1	
R3554		ERJ6GEYJ681	CHIP 1/16W 680	1	
R3555		ERJ6GEYJ683	CHIP 1/16W 68K	1	
R3556		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R3558		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3559		ERJ6GEYJ332	CHIP 1/16W 3.3K	1	
R3560,61		ERJ6GEYJ471	CHIP 1/16W 470	2	
R3562		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3563		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R3564		ERJ6GEYJ123	CHIP 1/16W 12K	1	
R3565		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3566		ERJ6GEYJ273	CHIP 1/16W 27K	1	
R3567		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R3568		ERJ6GEYJ272	CHIP 1/16W 2.7K	1	
R3569		ERJ6GEYJ683	CHIP 1/16W 68K	1	
R3570		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R3571		ERJ6GEYJ122	CHIP 1/16W 1.2K	1	
R3572		ERJ6GEYJ123	CHIP 1/16W 12K	1	
R3573		ERJ6GEYJ273	CHIP 1/16W 27K	1	
R3574		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R3575		ERJ6GEYJ101	CHIP 1/16W 100	1	
R3576,77		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R3578		ERJ6GEYJ152	CHIP 1/16W 1.5K	1	
R3579		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3580		ERJ6GEYJ273	CHIP 1/16W 27K	1	
R3581		ERJ6GEYJ272	CHIP 1/16W 2.7K	1	
R3582,83		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R3584		ERJ6GEYJ561	CHIP 1/16W 560	1	
R3585,86		ERJ6GEYJ123	CHIP 1/16W 12K	2	
R3587,88		ERJ6GEYJ471	CHIP 1/16W 470	2	
R3589		ERJ6GEYJ123	CHIP 1/16W 12K	1	
R3590		ERJ6GEYJ272	CHIP 1/16W 2.7K	1	
R3591		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3592,93		ERJ6GEYJ471	CHIP 1/16W 470	2	
R3594		ERJ6GEYJ122	CHIP 1/16W 1.2K	1	
R3595		ERJ6GEYJ821	CHIP 1/16W 820	1	
R3596		ERJ6GEYJ151	CHIP 1/16W 150	1	
R3597		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R3598		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R3599		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R3600		ERJ6GEYJ821	CHIP 1/16W 820	1	
R3601-03		ERJ6GEYJ102	CHIP 1/16W 1K	3	
R3604		ERJ6GEYJ561	CHIP 1/16W 560	1	
R3605-07		ERJ6GEYJ103	CHIP 1/16W 10K	3	
R3608		ERJ6GEYJ391	CHIP 1/16W 390	1	
R3609		ERJ6GEY0R00	CHIP 1/16W 0	1	
R3610		ERJ6GEYJ273	CHIP 1/16W 27K	1	
R3611		ERJ6GEYJ821	CHIP 1/16W 820	1	
R3612		ERJ6GEYJ182	CHIP 1/16W 1.8K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R3613		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R3614		ERJ6GEYJ470	CHIP 1/16W 47	1	
R3615		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3616		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R3617		ERJ6GEYJ392	CHIP 1/16W 3.9K	1	
R3618		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R3619		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R3620		ERDS2TJ221	C.RESISTOR 1/4W 220	1	
R3621,22		ERJ6GEYJ472	CHIP 1/16W 4.7K	2	
R3623		ERJ6GEYJ122	CHIP 1/16W 1.2K	1	
R3624,25		ERJ6GEYJ562	CHIP 1/16W 5.6K	2	
R3626,27		ERJ6GEYJ473	CHIP 1/16W 47K	2	
R3628		ERJ6GEYJ393	CHIP 1/16W 39K	1	
R3629		ERJ6GEYJ333	CHIP 1/16W 33K	1	
R3630		ERJ6GEYJ332	CHIP 1/16W 3.3K	1	
R3631,32		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R3633		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R3634		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3635		ERJ6GEYJ152	CHIP 1/16W 1.5K	1	
R3636		ERJ6GEYJ471	CHIP 1/16W 470	1	
R3637		ERJ6GEYJ182	CHIP 1/16W 1.8K	1	
R3638		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R3639,40		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R3641		ERJ6GEYJ273	CHIP 1/16W 27K	1	
R3642		ERJ6GEYJ153	CHIP 1/16W 15K	1	
R3643,44		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R3645		ERJ6GEYJ182	CHIP 1/16W 1.8K	1	
R3646		ERJ6GEYJ331	CHIP 1/16W 330	1	
R3647		ERJ6GEYJ182	CHIP 1/16W 1.8K	1	
R3648,49		ERJ6GEYJ122	CHIP 1/16W 1.2K	2	
R3650,51		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R3652		ERJ6GEYJ101	CHIP 1/16W 100	1	
R3653		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3654		ERJ6GEYJ331	CHIP 1/16W 330	1	
R3656,57		ERJ6GEYJ471	CHIP 1/16W 470	2	
R3658		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R3659		ERJ6GEYJ333	CHIP 1/16W 33K	1	
R3660		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3661		ERJ6GEYJ123	CHIP 1/16W 12K	1	
R3662		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R3663-65		ERJ6GEYJ102	CHIP 1/16W 1K	3	
R3666		ERJ6GEYJ511	CHIP 1/16W 510	1	
R3667		ERJ6GEYJ182	CHIP 1/16W 1.8K	1	
R3668		ERJ6GEYJ471	CHIP 1/16W 470	1	
R3669,70		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R3671		ERJ6GEYJ273	CHIP 1/16W 27K	1	
R3672		ERJ6GEYJ123	CHIP 1/16W 12K	1	
R3673		ERJ6GEYJ681	CHIP 1/16W 680	1	
R3674		ERJ6GEYJ331	CHIP 1/16W 330	1	
R3675		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3676		ERJ6GEYJ681	CHIP 1/16W 680	1	
R3677		ERJ6GEYJ561	CHIP 1/16W 560	1	
R3678		ERDS2TJ103	CRESISTOR 1/4W 10K	1	
R3679		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3680,81		ERJ6GEYJ222	CHIP 1/16W 2.2K	2	
R3682		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R3683		ERJ6GEYJ392	CHIP 1/16W 3.9K	1	
R3684		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R3685		ERJ6GEYJ272	CHIP 1/16W 2.7K	1	
R3686		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R3690		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R3691		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R3692		ERJ6GEYJ273	CHIP 1/16W 27K	1	
R3693		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R3694		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3696-99		ERJ6GEYJ223	CHIP 1/16W 22K	4	
R3700,01		ERJ6GEYJ222	CHIP 1/16W 2.2K	2	
R3702		ERJ6GEYJ330	CHIP 1/16W 33	1	
R3703,04		ERJ6GEYJ222	CHIP 1/16W 2.2K	2	
R3705		ERJ6GEYJ822	CHIP 1/16W 8.2K	1	
R3706		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R3707		ERJ6GEYJ822	CHIP 1/16W 8.2K	1	
R3708		ERJ6GEYJ153	CHIP 1/16W 15K	1	
R3709		ERJ6GEYJ151	CHIP 1/16W 150	1	
R3712		ERJ6GEYJ271	CHIP 1/16W 270	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R3713		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3715		ERJ6GEYJ561	CHIP 1/16W 560	1	
R3716		ERJ6GEYJ122	CHIP 1/16W 1.2K	1	
R3717		ERJ6GEYJ331	CHIP 1/16W 330	1	
R3718		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R3719		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3720		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3721		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R3722		ERJ6GEYJ561	CHIP 1/16W 560	1	
R3724		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3725		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R3726		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R3727		ERJ6GEYJ332	CHIP 1/16W 3.3K	1	
R3731		ERDS2TJ821	C.RESISTOR 1/4W 820	1	
R3732		ERJ6GEYJ471	CHIP 1/16W 470	1	
R3733		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R3734		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3735		ERJ6GEYJ152	CHIP 1/16W 1.5K	1	
R3736		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3737		ERJ6GEYJ391	CHIP 1/16W 390	1	
R3738		ERJ6GEYJ221	CHIP 1/16W 220	1	
R3739		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R3740		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R3741		ERJ6GEYJ332	CHIP 1/16W 3.3K	1	
R3742-44		ERJ6GEYJ102	CHIP 1/16W 1K	3	
R3745,46		ERJ6GEYJ152	CHIP 1/16W 1.5K	2	
R3747		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3748		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3749		ERJ6GEYJ391	CHIP 1/16W 390	1	
R3750		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R3751		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R3752		ERJ6GEYJ823	CHIP 1/16W 82K	1	
R3753		ERJ6GEYJ272	CHIP 1/16W 2.7K	1	
R3754		ERJ6GEYJ224	CHIP 1/16W 220K	1	
R3755		ERJ6GEY0R00	CHIP 1/16W 0	1	
R3756		ERDS2TJ222	C.RESISTER 1/4W 2.2K	1	
R3801		ERJ6GEYJ331	CHIP 1/16W 330	1	
R3802		ERJ6GEYJ683	CHIP 1/16W 68K	1	
R3803		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R3804		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3805		ERJ6GEYJ332	CHIP 1/16W 3.3K	1	
R3806		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R3807		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R3808		ERJ6GEYJ681	CHIP 1/16W 680	1	
R3809		ERJ6GEYJ471	CHIP 1/16W 470	1	
R3810		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R3811		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R3812,13		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R3814		ERDS2TJ105	C.RESISTER 1/4W 1M	1	
R3872		ERJ6GEYJ471	CHIP 1/16W 470	1	
R3873		ERJ6GE0R00	CHIP 1/16W 0	1	
TH3503		ERTD2FHL102S	THERMISTOR 1K	1	<R>
TH3801		ERTD2FHL102S	THERMISTOR 1K	1	<R>
VR3501		EVM7YSX00B24	V.RESISTOR 20K	1	
VR3502		EVM7YSX00B52	V.RESISTOR 500	1	
VR3503,05		EVM7YSX00B13	V.RESISTOR 1K	2	
VR3506		EVM7YSX00B52	V.RESISTOR 500	1	
VR3507-09		EVM7YSX00B13	V.RESISTOR 1K	3	
VR3510		EVM7YSX00B24	V.RESISTOR 20K	1	
VR3511,12		EVM7YSX00B13	V.RESISTOR 1K	2	
VR3513		EVM7YSX00B52	V.RESISTOR 500	1	
X3502		VSX0160	CRYSTAL OSCILLATOR	1	
			MISCELLANEOUS		

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
		VMZ1081	INSULATED SHEET	1	
		VJR0134	PIN	3	
		VMZ1081	INSULATED SHEET	1	
		VSC2137	SHIELD CASE	2	
		VSC2138	SHIELD CASE (MIDDLE)	1	
		VJF0215	BIND	1	
	■	VEP05107A	HEAD AMP C.B.A.		
			CAPACITORS		
C5001,02		ECUX1H103KBN	CHIP 50V 0.01U	2	
C5003		ECEA1CKS470I	E.CAPACITOR 16V 47U	1	
C5004		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C5005		ECUX1H103KBN	CHIP 50V 0.01U	1	
C5006		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C5007		ECUX1H103KBN	CHIP 50V 0.01U	1	
C5008		ECEA1CKS470I	E.CAPACITOR 16V 47U	1	
C5009		ECUX1H121JCN	CHIP 50V 120P	1	
C5011		ECQB1H153JH	P.CAPACITOR 50V 0.015U	1	
C5012,13		ECUX1E104ZFN	CHIP 25V 0.1U	2	
C5014		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C5015		ECUX1H103KBN	CHIP 50V 0.01U	1	
C5016		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C5017		VCYD1C104MR1	S.CAPACITOR 16V 0.1U	1	
C5019		ECUX1H103KBN	CHIP 50V 0.01U	1	
C5020		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C5021		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C5022		ECUX1H473ZFN	CHIP 50V 0.047U	1	
C5023		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C5024		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C5025		ECUX1H102KBN	CHIP 50V 1000P	1	
C5027		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C5028,29		ECUX1H103KBN	CHIP 50V 0.01U	2	
C5030		ECUX1H102KBN	CHIP 50V 1000P	1	
C5031		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C5033		ECUX1H102KBN	CHIP 50V 1000P	1	
C5034		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C5035,36		ECUX1H103KBN	CHIP 50V 0.01U	2	
C5037		ECEA1HKSR22I	E.CAPACITOR 50V 0.22U	1	
D5001		MA151WK	DIODE	1	<R>
FL5001		VLF0582	FILTER	1	
FL5002		VLD0127	DELAY LINE	1	
IC5001		VCR0107	IC	1	<R>
IC5002		AN3311S	IC	1	<R>
L5001,02		VLQ0207K101	COIL 100UH	2	
L5003		VLQ0207K6R8	COIL 6.8UH	1	
L5004		VLQ0207K101	COIL 100UH	1	
L5005		VLQ0207K391	COIL 390UH	1	
L5006,07		VLQ0207K101	COIL 100UH	2	
L5008-11		VLF0365	FILTER	4	
P5001		VJP1235T	CONNECTOR(MALE) 8P	1	
P5002		VJP1597T	CONNECTOR(MALE) 4P	1	
P5003		VJP1605T	CONNECTOR(MALE) 12P	1	
P5004		VJP1597T	CONNECTOR(MALE) 4P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
Q5002		2SB710	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q5003,04		2SD601	TRANSISTOR CHIP	2	(Q,R,S)<R>
Q5005		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q5007		2SA1022	TRANSISTOR CHIP	1	(B,C)<R>
Q5008		2SB710	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q5009		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q5010-13		2SD602	TRANSISTOR	4	(R,S)<R>
QR5001,02		UN2213	TRANSISTOR-RESISTOR	2	<R>
			RESISTORS		
R5001		ERJ6GEYJ101	CHIP 1/16W 100	1	
R5002,03		ERJ6GEYJ223	CHIP 1/16W 22K	2	
R5004		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R5005		ERJ6GEYJ561	CHIP 1/16W 560	1	
R5006		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R5007		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R5008,09		ERJ6GEYJ103	CHIP 1/16W 10K	2	
R5010		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R5011		ERJ6GEYJ330	CHIP 1/16W 33	1	
R5012		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R5013		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R5016		ERJ6GEYJ271	CHIP 1/16W 270	1	
R5017		ERJ6GEYJ561	CHIP 1/16W 560	1	
R5018		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R5019		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R5020		ERJ6GEYJ153	CHIP 1/16W 15K	1	
R5021		ERJ6GEYJ101	CHIP 1/16W 100	1	
R5022		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R5023		ERJ6GEYJ392	CHIP 1/16W 3.9K	1	
R5025-28		ERJ6GEYJ152	CHIP 1/16W 1.5K	4	
R5029		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R5030		ERJ6GEYJ152	CHIP 1/16W 1.5K	1	
R5031		ERJ6GEYJ122	CHIP 1/16W 1.2K	1	
R5032		ERJ6GEYJ681	CHIP 1/16W 680	1	
R5034		ERJ6GEYJ100	CHIP 1/16W 10	1	
R5035,36		ERJ6GEYJ182	CHIP 1/16W 1.8K	2	
R5037		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R5038,39		ERJ6GEYJ100	CHIP 1/16W 10	2	
R5040,41		ERJ6GEYJ182	CHIP 1/16W 1.8K	2	
R5042		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R5043		ERJ6GEYJ100	CHIP 1/16W 10	1	
R5044		ERJ6GEYK1R0	CHIP 1/16W 1	1	
			MISCELLANEOUS		
E8(3)		VKC0318	HINGE	2	
		VSC2135	SHIELD CASE (MIDDLE)	1	
		VSC2136	SHIELD CASE (LOWER)	1	
		VMZ1080	INSULATED SHEET	1	
	■	VEP06421A	FRONT C.B.A.		
			CAPACITORS		
C4208		ECEA1CKS330I	E.CAPACITOR 16V 33U	1	
C4209-14		ECSE1VT105Z	TANTALUM 35V 1U	6	
C4215-17		ECEA1CKS100	E.CAPACITOR 16V 10U	3	
C4701		ECEA1CKS470I	E.CAPACITOR 16V 47U	1	
C4702		ECEA1AKS470I	E.CAPACITOR 10V 47U	1	
C4703		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C4704		ECEA1AKS470I	E.CAPACITOR 10V 47U	1	
C4705		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C4706		ECEA1AKS470	E.CAPACITOR 10V 42U	1	
C4707-14		ECEA1CKS100	E.CAPACITOR 16V 10U	8	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C4715		ECEA1AK101I	E.CAPACITOR 10V 100U	1	
C4716		ECEA1CKS470I	E.CAPACITOR 16V 47U	1	
C4717,18		ECUX1H271KCN	CHIP 50V 270P	2	
C4719		ECEA1CKS220I	E.CAPACITOR 16V 22U	1	
C4720,21		ECUX1H560JCN	CHIP 50V 56P	2	
C4722		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C6501		ECUX1H103KBN	CHIP 50V 0.01U	1	
C6502		ECEA1HKS2R2I	E.CAPACITOR 50V 2.2U	1	
C6503		ECUX1H330JCN	CHIP 50V 33P	1	
C6504-06		ECUX1H103KBN	CHIP 50V 0.01U	3	
C6507		ECUX1H221KBN	CHIP 50V 220P	1	
C6508		ECUX1H122KBN	CHIP 50V 1200P	1	
C6509		ECUX1H153KBN	CHIP 50V 0.015U	1	
C6510		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C6511,12		ECUX1H103KBN	CHIP 50V 0.01U	2	
C6513		ECEA1CKS470I	E.CAPACITOR 16V 47U	1	
C6514		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
D4201-04		OA90	DIODE	4	<R>
D4205		MA3091H	DIODE	1	<R>
D4206		BG3668S	DIODE	1	<R>
D4207,08		LN0228CP4	DIODE	2	<R>
D4209		VLL0045	DIODE	1	<R>
D4701		MA153	DIODE	1	<R>
D6501		HZ4CLL	DIODE	1	<R>
D6502		LN28CALS	LED	1	<R>
D6503		MA151K	DIODE	1	<R>
D6504		HZ3BLL	DIODE	1	<R>
D6505-15		MA151K	DIODE	11	<R>
D6518		LN28CALS	LED	1	<R>
D6520		MA165	DIODE	1	OR 1SS119, 1SS254<R>
D6521		MA153	DIODE	1	<R>
D6522,23		MA151K	DIODE	2	<R>
IC4201		AN6558S	IC	1	<R>
IC4701		NJM4556D	IC	1	<R>
IC4702		AN6558S	IC	1	<R>
IC6501		UPD7503G490	IC	1	<R>
IC6502		MN4069UBS	IC	1	<R>
IC6503		MN4066BS	IC	1	<R>
L4202		VLQEL05F221K	COIL 220UH	1	
P4201		VJP1616T	CONNECTOR(MALE)	1	
P4202		VJP1606T	CONNECTOR(MALE)	1	
P4203		VJP1612T	CONNECTOR(MALE)	1	
P4205		VJP1607T	CONNECTOR(MALE)	1	
P4206,07		VJP1595T	CONNECTOR(MALE) 2P	2	
P4701		VJP1616T	CONNECTOR(MALE)	1	
P4702		VJP1607T	CONNECTOR(MALE)	1	
P6501		VJP1606T	CONNECTOR(MALE)	1	
P6502		VJP1614T	CONNECTOR(MALE)	1	
P6503		VJP1608T	CONNECTOR(MALE)	1	
P6504		VJP1229T	CONNECTOR(MALE) 2P	1	
Q4207		2SD602	TRANSISTOR	1	(R,S)<R>
Q4701-04		2SD1328	TRANSISTOR CHIP	4	<R>
Q4705		2SB709	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q4706		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q4707		2SD1328	TRANSISTOR CHIP	1	(R,S)<R>
Q6501		2SD638	TRANSISTOR	1	(Q,R,S)<R>
Q6502		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q6503,04		2SD602	TRANSISTOR	2	(R,S)<R>
Q6505		2SD601	TRANSISTOR CHIP	1	(Q,R,S)<R>
Q6506		2SB643	TRANSISTOR	1	(Q,R,S)<R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
QR4201,02		UN2215	TRANSISTOR-RESISTOR	2	<R>
QR6502,03		UN2214	TRANSISTOR-RESISTOR	2	<R>
QR6505,06		UN2214	TRANSISTOR-RESISTOR	2	<R>
QR6507		UN2211	TRANSISTOR-RESISTOR	1	<R>
QR6508		UN2213	TRANSISTOR-RESISTOR	1	<R>
QR6509		UN2211	TRANSISTOR-RESISTOR	1	<R>
			RESISTORS		
R4223		ERJ6GEYJ183	CHIP 1/16W 180K	1	
R4224,25		ERJ6GEYJ103	CHIP 1/16W 10K	2	
R4226		ERJ6GEYJ183	CHIP 1/16W 180K	1	
R4227-29		ERJ6GEYJ103	CHIP 1/16W 10K	3	
R4230		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R4231		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R4232		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R4233		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R4234,35		ERJ6GEYJ221	CHIP 1/16W 220	2	
R4236		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R4237,38		ERDS2TJ391	C.RESISTOR 1/4W 390	2	
R4701		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R4702		ERJ6GEYJ470	CHIP 1/16W 47	1	
R4703		ERJ6GEYJ101	CHIP 1/16W 100	1	
R4704		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R4705		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R4706		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R4707		ERJ6GEYJ470	CHIP 1/16W 47	1	
R4708		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R4709		ERJ6GEYJ101	CHIP 1/16W 100	1	
R4710		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R4711		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R4712		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R4713,14		ERJ6GEYJ103	CHIP 1/16W 10K	2	
R4715		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R4716		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R4717,18		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R4719		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R4720,21		ERJ6GEYJ104	CHIP 1/16W 100K	2	
R4722,23		ERJ6GEYJ103	CHIP 1/16W 10K	2	
R4724		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R4725		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R4726		ERJ6GEYJ561	CHIP 1/16W 560	1	
R4727		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R4728		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R4729		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R4730,31		ERJ6GEYJ103	CHIP 1/16W 10K	2	
R4732		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R4733		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R4734		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R4735		ERJ6GEYJ561	CHIP 1/16W 560	1	
R4736		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R4740		ERJ6GEYJ681	CHIP 1/16W 680	1	
R4741		ERJ6GEYJ473	CHIP 1/16W 47K	1	
R4742		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R6501		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R6502		ERJ6GEYJ221	CHIP 1/16W 220	1	
R6503-05		ERJ6GEYJ104	CHIP 1/16W 100K	3	
R6507		ERJ6GEYG823	CHIP 1/16W 82K	1	
R6508		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R6509		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R6510		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R6511,12		ERJ6GEYJ104	CHIP 1/16W 100K	2	
R6513		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R6514		ERJ6GEYJ821	CHIP 1/16W 820	1	
R6515		ERJ6GEYJ153	CHIP 1/16W 15K	1	
R6516,17		ERJ6GEYJ103	CHIP 1/16W 10K	2	
R6518-21		ERJ6GEYJ221	CHIP 1/16W 220	4	
R6522		ERJ6GEYJ104	CHIP 1/16W 100K	1	
R6523		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R6524		ERJ6GEYJ221	CHIP 1/16W 220	1	
R6525		ERJ6GEYJ184	CHIP 1/16W 180K	1	
R6526-28		ERJ6GEYJ104	CHIP 1/16W 100K	3	
R6529		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R6530		ERJ6GEYJ124	CHIP 1/16W 120K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R6531		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R6532		ERJ6GEYJ683	CHIP 1/16W 68K	1	
R6533		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R6534		ERJ6GEYJ124	CHIP 1/16W 120K	1	
R6535		ERJ6GEYJ271	CHIP 1/16W 270	1	
R6536		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R6537		ERJ6GEYJ271	CHIP 1/16W 270	1	
R6538		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R6539		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R6540,41		ERJ6GEYJ103	CHIP 1/16W 10K	2	
R6542		ERJ6GEYJ472	CHIP 1/16W 4.7K	1	
R6543		ERJ6GEYJ563	CHIP 1/16W 56K	1	
R6544		ERJ6GEYJ223	CHIP 1/16W 22K	1	
SW4201		ESD14314	SWITCH	1	<R>
SW4204		VSS0153	SWITCH	1	<R>
SW6501		ESD14184	SWITCH	1	<R>
SW6502		ESD14314	SWITCH	1	<R>
SW6504		VSP0151	SWITCH	1	<R>
SW6505-09		EVQQSB05G	SWITCH	5	<R>
SW6510		EVQQS307K	SWITCH	1	<R>
SW6511		VSP0151	SWITCH	1	<R>
SW6512		EVQQSB05G	SWITCH	1	<R>
SW6513		VSP0151	SWITCH	1	<R>
SW6514		EVQQS307K	SWITCH	1	<R>
VR4201-04		VRV0080	V.RESISTOR	4	
VR4205,06		EVMLGGA00B53	V.RESISTOR 5K	2	
VR4207,08		VRV0057	V.RESISTOR	2	
			MISCELLANEOUS		
E9(3)		VKC0281	HINGE	2	
		VMX1021	SPACER	2	
E10(3)		VJF0490	METER HOLDER	1	
E11(3)		VSE0068	AUDIO LEVEL METER	2	
		KL02	LED SPACER	3	
		VJF0491	LED HOLDER	1	
E12(3)		VEK3644	L.C.D. UNIT	1	
	■	VEP00B67A	FE HEAD C.B.A.		
C1501		ECKF1H472ZF	C.CAPACITOR 50V 4700P	1	
C1502		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C1503		ECQV1H333JZ	P.CAPACITOR 50V 0.033U	1	
C1504		VCYD1C103MR1	S.CAPACITOR 16V 0.01U	1	
L1501		VLQEL05F221K	COIL 220UH	1	
P654		VJP1229T	CONNECTOR(MALE) 2P	1	
Q1503		2SC2603AE2F	TRANSISTOR	1	<R>
R1501		ERDS2TJ333	C.RESISTOR 1/4W 33K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
T1501		VTD0014B	TRANSFORMER	1	<R>
	■	VEK3338	REAR FRAME (R) UNIT		
C1501-2		ECQV1H104JZ	P.CAPASITOR 50V 0.1U	2	
C1503		ECEA1CKS100	E.CAPASITOR 16V 10U	1	
D1501-2		ESAC82004	DIODE	2	<R><!>
IC1501		AN7805	IC	1	<R>
P1501		VJP1145	CONNECTOR(MALE) 8P	1	
P1502		VJP1230T	CONNECTOR(MALE) 3P	1	
P1503		VJP1242	CONNECTOR(MALE) 2P	1	
Q1501		2SB947	TRANSISTOR	1	(P,Q,R)<R><!>
Q1502		2SD1270	TRANSISTOR	1	(P,Q)<R><!>
			MISCELLANEOUS		
E13(3)		VMC0190	EARTH SPRING	1	
E14(3)		VMD1095	14P SOCKET HOLDER	1	
E15(3)		NO17A	MICA PLATE	2	
E16(3)		VJP1885	EXT. DC JACK	1	
E17(3)		VEE3660	14P CAMERA CONNECTOR UNIT	1	
E18(3)		NO24B	INSULATION TUBE	2	
	■	VXA2554	A/C HEAD UNIT		
R1-2		ERDS2TJ100	C.RESISTOR 1/4W 10	2	
		VJP1244T	CONNECTOR(MALE) 4P	1	
			MISCELLANEOUS		
E19(2)		VSQ0540	DEW SENSOR UNIT	1	
E20(2)		VML1791	A/C HEAD ARM	1	
E21(2)		VBR0098	A/C HEAD	1	
E22(2)		VMB0935	ADJUST SPRING	1	
E23(2)		VHD0077	SCREW	1	
E24(2)		VHD0144	SCREW	1	
	■	VXA2550	SOLENOID C.B. UNIT		

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
			MISCELLANEOUS		
E25(1)		VSJ0066	KEEP SOLENOID	1	<R>